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DIAGNOSIS OF RENAL TUBERCULOSIS*

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SAN FRANCISCO

While the diagnosis of renal tuberculosis in the presence of tubercle bacilli in an acid urine, frequent and painful urination, pyuria, hematuria, albuminuria and pain in the kidney region is obviously simple, any or all of these symptoms may be lacking and its detection correspondingly difficult. The absence of tubercle bacilli from the urine in the presence of renal involvement is not uncommon in the early stage of the closed parenchymatous type of infection before extension to the pelvis of the kidney has occurred, while later failure to demonstrate the bacillus is more often due to occlusion of a tuberculous ureter. In addition, there are also intervals during which, even though the ureter is patent and the process involves the renal pelvis, the urine contains no tubercle bacilli, just as in pulmonary tuberculosis the sputum is occasionally free from these organisms. Of considerable interest in this connection are Hobbs'[1] statistics showing that, although at the necropsy of 143 patients with advanced pulmonary tuberculosis involvement of the kidneys could be detected macroscopically in 55 per cent, very few had any symptoms of renal tuberculosis during life. In 3,766 other cases of pulmonary tuberculosis reported by various observers, kidney involvement was found macroscopically at necropsy in 588, or a little more than 15.5 per cent. Microscopic examination in a similar, although smaller, series of cases revealed infection of the kidney in more than twice this number. Unquestionably, involvement of the kidneys occurs more frequently in the presence of active pulmonary tuberculosis than is generally appreciated.

The presence of tubercle bacilli in smears of the bladder or kidney urine, or a positive guinea-pig test does not necessarily indicate renal involvement, as these organisms may occasionally be excreted by a normal kidney. Hobbs' statistics show that tubercle bacilli were found in the urine of more than 8 per cent of 422 patients suffering from pulmonary tuberculosis, but with no other symptoms referable to the urinary tract.

Tuberculosis of the epididymis, prostate or seminal vesicles, primary so far as the genito-urinary tract is concerned, is also often responsible for tubercle bacilli in the bladder urine. The very frequent association of genital and renal tuberculosis in the male, however, should be remembered. Tuberculosis of the female genitalia, on the other hand, is seldom associated with tuberculosis of the kidneys.

GUINEA-PIG INOCULATION

Although the diagnosis has been confirmed at operation in more than 90 per cent of my cases showing a positive guinea-pig test, this procedure is by no means infallible. In one of my recent cases, the guinea-pig inoculated with urine from the right, as well as the animal inoculated with urine from the left, kidney developed tuberculosis. Following removal of the right kidney, repeated inoculation tests with urine from the remaining organ were negative, and when last seen, one and one-half years later, the patient was apparently in perfect health.

In other cases, the guinea-pig tests have been negative but the smears positive. Tubercle bacilli were demonstrated at some time in 83 per cent of the specimens of urine from kidneys that I found to be tuberculous at operation.

E. Lowenstein's recent article is of considerable interest in this connection. It deals with the study and classification of the many varieties of tubercle bacilli by means of animal experimentation and pure cultures in the diagnosis of renal tuberculosis. He says that we cannot depend on rabbit and guinea-pig inoculations as to whether or not a strain is pathogenic for man. This information must be obtained directly by means of pure cultures to determine the existing bacteria in each case. He believes that this would show a surprising variety of tubercle bacilli, pathogenic for man, which produce a succession of different clinical pictures. One strain was isolated by Dr. Deutsch, using Lowenstein's method. A very few acid-fast bacteria were present in the urine, but animal inoculation with the pure culture was negative. Operation revealed tuberculosis. A second strain was likewise isolated which contained a few tubercle bacilli. Animal inoculation was negative, but the culture was positive. Renal tuberculosis was found at operation. Another strain would likewise not be taken for tubercle bacilli. The author says that it probably resembles the pseudotubercle bacilli that are found on grasses, plants and in water. What rôle they play free in nature is not known, but this curious strain calls forth a severe tuberculosis in man, although it is absolutely nonpathogenic for the guinea-pig.

REPORT OF CASES

CASE 1.—A married woman, aged 42, complained of "bearing down" pains in the left lower abdominal quadrant and left lumbar regions, and frequent urination accompanied by burning sensation, which became worse at the end of urination. The bladder urine contained a number of pus cells and a large amount of sugar. No tubercle bacilli were found on examination of the stained sediment. A normal bladder mucosa was

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1. Hobbs, F. B.: The Elimination of the Tubercle Bacilli by the Kidneys in Pulmonary Tuberculosis, Tubercle 5: 57, 1924.

found on cystoscopy. The right kidney urine was microscopically and culturally negative. The left kidney urine contained a number of pus cells, and colon bacilli were found on culture. Comparative functional tests showed diminished function in the left kidney. Pyelography revealed marked blunting of the minor calices of the left kidney, although the pelvis proper was not dilated. There was evidence of marked disorganization of the upper portion of the pelvis. The guinea-pig inoculated with the left kidney urine developed

Fig. 1.—Tuberculous ulceration and dilatation involving only two calices; both pelvis and kidney are small.

tuberculosis. A diagnosis of unilateral tuberculosis was made and the kidney removed. Careful examination, however, revealed an advanced pyonephrosis but no evidence of tuberculosis. Another interesting feature in this case was the absence of sugar in the left kidney urine, nothwithstanding a large amount in the bladder urine. The blood contained 288 mg. of sugar to 100 cc.

Confusion and unavoidable delay are apt to arise in those cases presenting only such symptoms as bladder irritation, pus and blood in the urine, which are also characteristic of some nontuberculous renal infections. It is in these cases that the diagnostic value of negative urine cultures is to be remembered, although Barney and Welles,[2] combining the results of cultures and smears, found 28.5 per cent of sixty-three renal tuberculosis cases associated with secondary infections. Fifty per cent more secondary infections, however, were obtained with the urine from the healthy kidney.

CASE 2.—A patient, aged 43, complained of frequent urination, accompanied by burning and a little blood at the end of urination. These symptoms had been present at intervals since catheterization because of retention of urine following a herniotomy performed two years before. The urine contained numerous pus cells and a few blood cells, but no tubercle bacilli were found. Cystoscopy revealed an injected bladder mucosa. There was a stricture in the left ureter 2 cm. from the bladder, beyond which nothing larger than a filiform could be passed at any time. Pyelography revealed an irregular dilatation of the upper portion of the left ureter, but the pelvis could not be seen. There was marked dilatation of the right pelvis, and the urine from this kidney contained a few pus cells, while culturally, *Staphylococcus albus*, colon bacilli and *Micrococcus catarrhalis* were found. Functional tests also revealed diminished function on this side. No indigo carmine appeared on the left side within forty-five minutes after intravenous injection. The case was considered inoperable, and conservative treatment instituted. Tubercle bacilli were not found in the urine until seven months later, repeated examinations in the meantime having been negative.

CASE 3.—A married woman, aged 54, complained of frequent and at times difficult and painful urination. She also suffered from pain in the hypogastric region. Examination revealed a urethral stricture and a marked cystocele. A catheterized specimen of bladder urine was chemically and microscopically negative. The symptoms improved after two or three dilations of the urethra but did not clear up completely. A second examination of the urine revealed a few pus cells. Cystoscopy and calibration for ureteral strictures were negative. The urine from both kidneys was microscopically and culturally negative. A third examination of the bladder urine one week later, however, revealed a large number of pus cells. Tubercle bacilli were then found on examination of the stained sediment. A cystoscopy was again performed, and urine obtained from both kidneys. The urine from the left kidney now contained a few pus cells, and the guinea-pig inoculated with the urine from this kidney gave a positive reaction for tuberculosis. This case illustrates the fact that renal tuberculosis is occasionally responsible for bladder symptoms even in the presence of a urine which is at times chemically and microscopically negative, and it emphasizes the importance of repeated examinations of the urine in the presence of symptoms referable to the urinary tract.

Palpation through the vagina in women and the rectum in men is often of diagnostic value, revealing at

Fig. 2.—Numerous small diffuse shadows due to tuberculous calcification.

times an indurated and sometimes nodular ureter resembling a fibrous cord on the affected side. When cystoscopy by means of water dilation is impracticable in the female, the ureters may often be catheterized through the Kelly cystoscope with the patient in the knee-chest position. In my experience, there has been less bladder involvement accompanying renal tuberculosis in women and female children than occurs in the opposite sex. The fact that chronic infections of the kidney, as in

2. Barney, J. D., and Welles, E. S.: Bacteriology of Urine in Renal Tuberculosis, J. A. M. A. **74**: 1499 (May 29) 1920.

other parts of the genito-urinary tract, are more often tuberculous in the male is also of diagnostic importance.

When it is impossible to locate the ureteral orifices the subcutaneous or intravenous injection of indigo carmine is often helpful, revealing the orifices if the ureter is not occluded. It is valueless, however, when the kidney function is diminished because of an advanced tuberculous process.

Fig. 3.—Several small irregular shadows due to tuberculous calcification.

CASE 4.—A married woman, aged 35, complained of frequent urination and pain in the lumbar regions, bladder and perineum of one year's duration. About six months before coming under my observation, she had occasionally noticed a little blood in the urine. A pyelogram (fig. 1) of the right kidney pelvis taken about the same time showed ulceration and irregular dilatations involving only two calices, one of the types of deformity suggestive of tuberculosis. Its significance had evidently not been recognized, as she had been treated with pelvic irrigations. Examination of the urine revealed numerous pus cells and tubercle bacilli. Cystoscopy showed an inflamed bladder mucosa and a large right ureteral orifice. A slight stricture was encountered in the right ureter about 2 cm. from the bladder. The right kidney urine contained a few pus cells, and the function of this kidney was diminished. Although the left kidney urine was microscopically negative, guinea-pig inoculation was considered advisable before removal of the right kidney. During a period of five weeks, while waiting for the result of the guinea-pig inoculation with the urine from the left kidney, repeated examinations of the bladder urine failed to reveal again tubercle bacilli, notwithstanding the presence of infection of the right kidney pelvis. In this connection, Desnos' observation is important. He reports a case in which no infection was found in a guinea-pig killed on the twentieth day. Another animal, inoculated at the same time, showed tuberculous lesions when examined at necropsy after nine weeks.

FUNCTIONAL KIDNEY TESTS

Wildbolz, Marion and Legueu stress the diagnostic value of functional kidney tests in early as well as late renal tuberculosis. The former [3] states that after using these tests, usually cryoscopy or indigo carmine, previous to about 500 nephrectomies, he has not been misled in a single instance. He says that the questions as to whether or not renal tuberculosis is present and, if so, is it unilateral or bilateral, are to be answered with certainty only by means of functional tests of the kidneys. He does not consider a little pus and a few tubercle bacilli pathognomonic of renal tuberculosis unless accompanied by a decrease in function. Haggard and Douglas, on the other hand, observed a number of cases in which the function was nearly normal, and I have seen early cases in which it was even slightly increased in the infected kidney. The subcutaneous injection of tuberculin is occasionally of diagnostic value, but only from a positive standpoint. A rise in temperature, accompanied by a focal reaction such as increased pain in the kidney region, more frequent urination and more pus and tubercle bacilli in the urine, is significant. Information obtained by this procedure is also often of value when there is a question as to involvement of the opposite kidney.

3. Wildbolz, H.: Function of Tuberculous Kidney, Schweiz. med. Wchnschr. **54**: 32-50 (Jan. 10) 1924.

BLADDER

Notwithstanding the bladder irritability which is seldom absent in the presence of renal tuberculosis, cystoscopy often fails to reveal pathologic changes in the former organ. In many cases, however, scattered areas of injection or hemorrhage, as well as tubercles and ulceration, are seen in the bladder mucosa. Occasionally contraction, more limited to one side of the bladder, will be seen. Not infrequently, one ureteral orifice will be displaced backward because of the retraction of a shortened tuberculous ureter. The bladder capacity is usually less and distention more painful than in any other pathologic condition of the urinary tract. It is advisable to remember that a tuberculous ulcer may occasionally be seen in the vicinity of the ureteral orifice corresponding to the uninvolved kidney. The characteristic patulous golf-hole ureteral orifice is usually seen later in the disease.

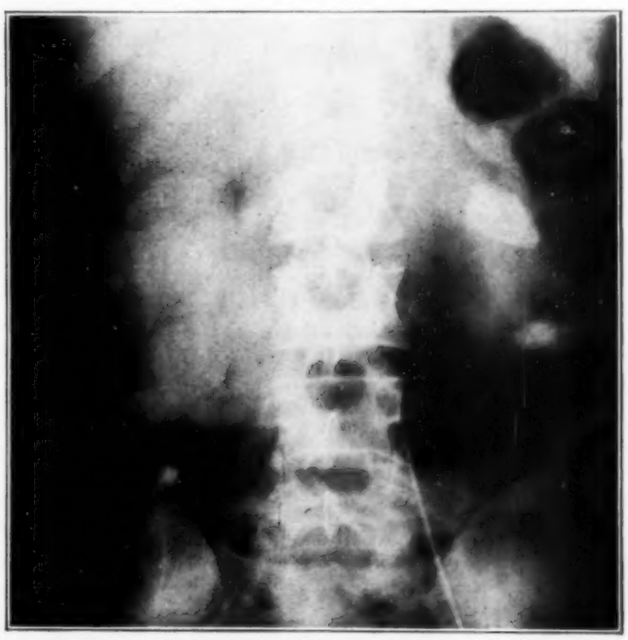

Fig. 4.—Several large shadows due to tuberculous calcification in the right kidney and smaller shadows due to stones in left kidney; the regular contour and greater density of the latter are demonstrated.

Dr. Hugh H. Young[4] reported some interesting bladder conditions due to tuberculosis. In one there was marked elevation of the trigon, and invagination of the ureteral ridge into the ureter. Cystoscopy in another case revealed an undermining of the elevated trigon and finally its complete separation from the bladder, except at the corners, resulting in the so-called floating trigon.

When bleeding interferes with clear vision, the injection into the bladder of sterilized liquid petrolatum, as suggested by Wardill, instead of the sterile water, boric acid or other solutions ordinarily used, is often of value, as the oil does not mix with the blood or urine.

ROENTGENOLOGY

Improved apparatus and more skillful technic have greatly increased the value of roentgenography, and positive roentgenographic results can now be detected in a much larger percentage of cases than is generally appreciated. This has been estimated by various observers to be from 15 to 30 per cent. Typical shadows due to tuberculous calcification were present in seven, or 46⅔ per cent, of our last fifteen consecutive cases in which roentgenograms were taken. Characteristic pyelographic observations were present in four, or 26⅔ per cent, of these cases. Roentgenography is often of great value when catheterization of one or both ureters is impossible, when tubercle bacilli cannot be demonstrated in the urine, when these organisms are found but all other symptoms of renal tuberculosis are absent,

Fig. 5.—Tuberculous calcification of the entire kidney.

and when it is impossible by other means to determine whether one or both kidneys are tuberculous. Calcification of tuberculous areas is considered a late process, although in one of our cases only two months had elapsed since the beginning of subjective symptoms. The average duration of symptoms in these cases in which tuberculous calcification was found was sixteen months.

4. Young, H. H.: Changes in the Trigon Due to Tuberculosis of the Kidneys, Ureter and Bladder: Bridge Formation and Floating Trigon, Surg. Gynec. Obst. **26**: 608 (June) 1918.

Tuberculous shadows may be classified into four groups: numerous small areas (fig. 2); one or several larger, more or less circumscribed areas (fig. 3); diffuse areas involving a large portion or the entire kidney (figs. 4 and 5), and shadows due to calcification of other urinary organs as well as the kidney (fig. 6). A unique example of the latter type, showing calcification in both kidneys and bladder as well as calcification of the entire left ureter, will be described later.

Fig. 6.—Tuberculous calcification in both kidneys, the entire left ureter and a portion of the bladder.

Occasionally, a tuberculous shadow will resemble in contour and density one due to stone, and differential diagnosis is then impossible from roentgenograms alone. The following case, seen with the late Dr. Martin Krotoszyner, is interesting in this connection.

Case 5.—A well nourished middle-aged woman complained of pain in the right kidney region radiating toward the bladder; also frequent and painful urination. The urine from the right ureter contained pus and blood, but repeated examinations failed to disclose tubercle bacilli. Two small well defined shadows were found on roentgenographic examination. Exposure of the kidney, however, showed two circumscribed areas of tuberculous caseation in the lower pole. The function of this kidney was somewhat greater than that of the opposite side.

Case 6.—An unusually interesting case under observation at the present time is that of a married Russian woman, aged 29, who entered the hospital, Dec. 5, 1924, complaining of fever and pain and swelling in the left kidney region of one month's duration. She had experienced a similar attack of two weeks' duration two years before. She also suffered from a burning pain during urination, and the urine was bloody at that time. Her father died of cancer. Her mother and three brothers died from some unknown cause. Another brother had tuberculosis. Three other brothers and four sisters are living and well. The physicians consulted told her that the urine contained pus and that "something was wrong" with her kidney. Examination revealed a little rigidity to the left of the umbilicus, and a somewhat tender, slightly movable, indefinite mass could be detected on deep palpation. The lower pole of the left kidney could apparently be felt above the mass. Both ureters were easily catheterized with number 6 catheters. Phenolsulphonphthalein appeared on both sides in three minutes. Comparative urea estimations gave equal values on the two sides. The urine was culturally and microscopically negative, and the guinea-pigs inoculated at this time were later reported

negative. After injection of 12.5 per cent sodium iodide solution through the left catheter, a part of the kidney pelvis with one calix, apparently the lower major calix, was outlined (fig. 7). This calix connected with a kidney-shaped but rather small organ, which was situated close to the left side of the spine at the level of the third and fourth lumbar segments. The spleen-shaped shadow, which lay to the left and below this small kidney, was probably the spleen, displaced very far downward from its usual position. Above this small kidney, there was a large mass which was interpreted as another left kidney probably connected with the same pelvis. Within this larger kidney were irregular shadows of varying density suggestive of tuberculous calcification (fig. 8). A normal kidney shadow was demonstrated on the right side. Not unlikely the upper kidney on the left side had a separate ureter which had closed, producing the so-called autonephrectomy not uncommon in renal tuberculosis. Eight months later, in August, 1925, the patient again complained of pain in the left lumbar region. This disappeared in about six weeks. She has also had two slight attacks since that time. Roentgenograms now show an increase in size of the calcified area. The line of separation between the two kidneys on the left side is more apparent (fig. 9). At the present time, March, 1926, the patient feels well and is apparently in good health. The urine is culturally and microscopically negative.

In considering the differential diagnosis between stone and tuberculous calcification, it is also important to remember that renal colic, although more frequently caused by a calculus, is sometimes due to obstruction of the ureter because of inflammation, stricture, or by blood or pus from the tuberculous kidney. Stone shadows are usually more prominent because of their greater density (fig. 4), although sharp shadows are occasionally given by calcareous tuberculous foci. While a dull ache is not uncommon, pain or tenderness in the kidney region is less pronounced in tuberculous

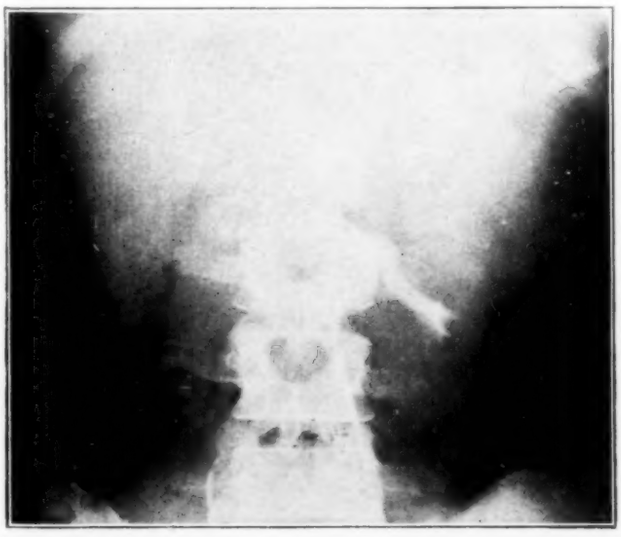

Fig. 7.—Two kidneys on the left side; tuberculous calcification in the upper kidney; kidney pelvis injected with 12.5 per cent sodium iodide solution.

infections than in that accompanying a stone. In a patient under recent observation, these symptoms had never been present although the kidney was almost completely destroyed. Stones are occasionally found in tuberculous kidneys, however, and may be responsible for the pain. In differentiating tuberculous shadows from those due to extrarenal calcification, the stereoscope is of decided value.

Pyelography is often helpful when tubercle bacilli have not been found in the urine. This procedure reveals an irregularity in outline and a characteristic moth-eaten appearance of the true pelvis or one or more calices (figs. 9 and 10). As Braasch and Olson [5] have pointed out, the dilatation of the pelvis which is usually confined to the calices differs from the nontuberculous types in greater irregularity in outline and by the variability of degree of dilatation between the different calices. Tuberculous infection of the kidney is often responsible for the true type of pyonephrosis char-

Fig. 8.—Two kidneys on the left side; tuberculous calcification in the upper kidney; kidney not injected.

acterized by the formation of abscess cavities in the parenchyma of the organ. These, communicating with the pelvis by narrow tracts, are frequently outlined in the pyelograms. In the early or moderately advanced stage of this type of infection the pelvis is often contracted. Later in this, as in the pelvic and mixed types of tuberculous infection, there is often marked dilatation. Dilatation of the ureter and pelvis as a result of stricture is of diagnostic value if associated with suggestive observations in the bladder or elsewhere. In the closed type of tuberculosis, it is obviously impossible to inject the renal pelvis with a shadow-casting solution. When ureteral catheterization is impracticable, and because of this or some other reason it is impossible to determine which kidney is involved, exploratory incision is at times indicated, although this procedure will not reveal the tuberculous foci if present unless they lie either on the surface of the kidney or the operative incision. More information may often be derived from the condition of the ureter or by examination of the urine obtained following incision of the pelvis or ureter, or by catheterization of the ureters following suprapubic cystotomy. Functional kidney tests may also be made following the latter procedures.

PUTTY KIDNEY

While calcified areas in tuberculous kidneys as already stated are not infrequently seen, a massive degeneration producing the so-called putty kidney is far less common.

5. Braasch, W. F., and Olson, F. A.: Surg. Gynec. Obst. **28**: 555 (June) 1919.

When present, the roentgen-ray appearance is so characteristic that a diagnosis may be made from it alone. An interesting example of this condition, in which calcification of the entire organ could be demonstrated roentgenographically, recently came under my observation (fig. 5).

CASE 7.—A truck driver, aged 34, had complained of frequent and painful urination for a period of six months. These symptoms had been more severe, and in addition he had tired easily during the past two weeks. The red blood corpuscles numbered 4,860,000, and the hemoglobin was 80 per cent. The urine contained numerous pus cells and a few tubercle bacilli. The bladder capacity was markedly decreased, and cystoscopy revealed a highly inflamed bladder mucosa. The ureteral orifices were not visible, but following intravenous injection indigo carmine appeared on the left side in seven minutes. None was seen in any other part of the bladder within twenty minutes. The patient's blood contained 41.25 mg. of urea per hundred cubic centimeters. The phenolsulphonphthalein excretion was 35 per cent in two hours. Although the possibility of bilateral tuberculosis was apparent and, as proved by subsequent results probably present, nephrectomy was considered justifiable. The patient improved temporarily, and was able to do light work for a time following this procedure. He passed from observation and died, however, about eight months after the operation. The specimen revealed a dilated renal pelvis filled with chalky material. The kidney tissue was reduced to a thin shell and the calices were greatly distended, sections showing small remnants of kidney tissue with marked fibrosis, collapse of tubules and endarteritis. The renal pelvis was lined with a thick layer of dense cicatricial tissue, which was covered in places with a thin layer of granulation tissue in which there were some epithelioid cells. In the cortex were a few old fibrous nodules with calcified caseous centers.

Fig. 9.—Marked irregularity of the pelvic outline due to extensive tuberculous ulceration.

The diagnosis was tuberculosis of the kidney, chronic and healed. Although the acute symptoms had existed only six months, the tuberculous infection was unquestionably of much longer duration, as calcification is always a late process. Of interest also in this case is the fact that a claim for compensation was made because of injury to the right side received only a short time before coming under observation.

TUBERCULOSIS OF THE KIDNEY IN CHILDREN

Tuberculosis of the kidney is comparatively uncommon in patients under 18 years of age, the majority of cases occurring in the third and fourth decades. I believe, however, that it occurs more frequently in children than is generally appreciated. In 1,082 cases of renal tuberculosis reported by different writers in which the age was stated, only six, or a little more than 0.5 per cent, occurred in children under 11 years of age. Edmund Cautley, however, found advanced renal tuberculosis in the postmortem examination of a child aged 1 year. One lung was also involved. No general dissemination had occurred. Of forty-seven cases of surgical renal tuberculosis in children collected by Vignard and Thevenot, four children were under 3, eight were from 3 to 6 years and nine from 6 to 11 years. The remainder were between 11 and 16 years. Oscar T. Schultz [6] states that cases occurring in infants aged from 3 to 7 months are on record. In my opinion, the small proportion of cases of renal tuberculosis found in published statistics results partly from failure to take advantage of modern urologic procedures in the examination of the urinary tract in children. Cystoscopy and ureteral catheterization are feasible in children of any age. I have performed a cystoscopy and irrigated the renal pelves of a girl, aged 4 months and 29 days, on several occasions without difficulty. Hobbs states that in the necropsy records of 162 cases of pulmonary tuberculosis in which kidney involvement was present, thirty were in children under 10 years of age. In similar records of thirty-three children under 4 years of age, Posner noted renal tuberculosis in fourteen. Dickson, quoted by Vignaud, found kidney involvement in 16.2 per cent of 300 children who died from pulmonary tuberculosis. Vignaud found the kidney affected in thirty-three of 100 tuberculous children. The greater frequence with which renal infection is found at the necropsy of children dying from pulmonary tuberculosis is due to the more widespread distribution of the generalized miliary type of tuberculosis found in these patients. Active lesions in other tissues are also more frequent in surgical renal tuberculosis in children. Eliasberg reported five cases of renal tuberculosis in children, of which number two died of tuberculous meningitis following nephrectomy, and a third from rapid spread of the infection to the other kidney and lungs. A child, aged 9 years, from whom I removed a tuberculous kidney eight years ago, is at present in excellent health. Another child on whom I operated about the same time gained 7 pounds (3.2 Kg.) in two and one-half weeks after leaving the hospital. The kidneys of both patients presented an advanced type of caseating cavernous tuberculosis. The first case was associated with tuberculosis of the hip, and the second was discovered after the child had entered the hospital for the removal of adenoids. Both patients complained of frequent urination. Catheterized specimens of bladder urine contained numerous pus cells, and tubercle bacilli were found in catheterized specimens of urine from one kidney in each instance.

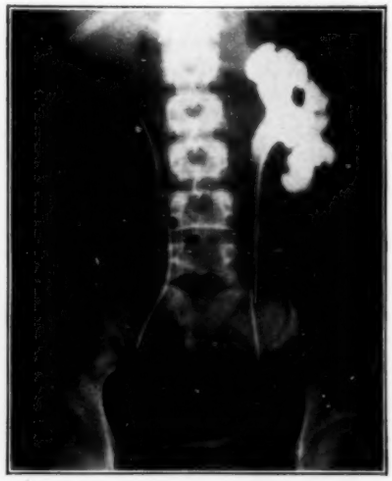

Fig. 10.—Irregular moth-eaten appearance due to extensive tuberculosis ulceration.

An unusually interesting case is that of a boy, aged 10 years, who entered the hospital for operation because of ankylosis of the knee joint due to a tuberculous infection of three years' duration. Routine urinalysis was negative. Chest films showed normal lung fields

6. Schultz, O. T.: Tuberculosis of the Kidney, Abstracts, Pediatrics 4: 966.

but revealed extensive calcification of the upper pole of the left kidney, which was included in the picture. Roentgenograms of the entire urinary tract by Dr. W. E. Chamberlain then disclosed extensive calcification in both kidneys and bladder as well as the entire left ureter (fig. 8). Examination of the urine for tubercle bacilli was now positive. Notwithstanding the advanced stage of the infection, the child lived for one year after the accompanying pictures were taken.

TUBERCULOSIS OF THE KIDNEY DURING PREGNANCY

Tuberculosis of the kidney is rarely found during pregnancy. It was seen only once in the last 4,000 patients admitted to the obstetric department of Stanford University Medical School, and few cases are recorded in the literature. I believe that some cases are overlooked, however, because of a tendency to minimize the importance of urinary disturbances occurring during gestation, and failure to make a thorough examination.

Early diagnosis is of the greatest importance, as a study of available statistics, and my own personal experience demonstrates the advantage to both mother and child of immediate nephrectomy in the presence of unilateral tuberculosis complicating pregnancy. In one of my own cases in which operation was deferred until after confinement, the child was infected at birth and died eight months later of tuberculous meningitis. The mother developed tuberculous salpingitis three and one-half years later, but the remaining kidney is apparently free from infection. In another case, the mother gained 20 pounds (9 Kg.) following nephrectomy during the second month of pregnancy. She aborted two months later, however, and tuberculosis of the remaining kidney was found four months after this event. Notwithstanding negative urine and guinea-pig tests, I believe that both of this patient's kidneys were affected at the time of operation.

CONCLUSIONS

The urine does not always contain tubercle bacilli, notwithstanding the presence of a tuberculous infection of the kidney, nor do these organisms in the bladder or even in the kidney urine necessarily indicate renal involvement.

Tuberculosis of the kidney is frequently associated with active pulmonary tuberculosis.

Some strains of tubercle bacilli may be pathogenic for man but not for the guinea-pig.

Repeated examinations of the urine by means of smears and guinea-pig inoculations are sometimes necessary before the tubercle bacilli are found.

The roentgenographic observations in renal tuberculosis are positive in a much larger number of cases than is generally appreciated, and this procedure should be more frequently employed in the diagnosis of renal tuberculosis.

Tuberculosis of the kidneys occurs more frequently in children than is indicated by most of the statistics appearing in the literature, and modern urologic diagnostic procedures, such as cystoscopy, ureteral catheterization, functional kidney tests and pyelo-ureterography, are frequently indicated in infants and children as well as in adults.

Renal tuberculosis is uncommon as a complication of pregnancy, although it is probably often overlooked.

Flood Building.

PREOPERATIVE DIAGNOSIS OF HORSESHOE KIDNEY *

HERMAN L. KRETSCHMER, M.D.
CHICAGO

There can be little doubt of the importance of making a preoperative diagnosis of horseshoe kidney, since this may simplify surgical technic and perhaps, under certain circumstances, modify somewhat the route of approach. A rather brief review of the literature, however, shows that very few of these cases are recognized before operation, or, at least if they are recognized, not many of them have been recorded in the literature. In a recent publication Eisendrath, Phifer and Culver report a series of cases collected from the literature up to July, 1925, including three of their own cases. Of a total of 133 cases, including their first two, only nineteen, or 14.2 per cent, were diagnosed before operation or necropsy and confirmed. While these figures are apparently low, it would seem that with the modern methods of diagnosis the percentage in which the diagnosis should now be made is, and will be, higher. Because of this seeming rarity of case reports, in which a preoperative diagnosis was made, it has occurred to me that it might be of interest to report a series of five cases in which the diagnosis was made before operation.

Three further cases of horseshoe kidney have come under my personal observation, one of which had been operated on elsewhere and half of a horseshoe kidney removed. In the second place, I made a diagnosis of tuberculosis of the kidney. The surgeon operating reported that he removed half of a horseshoe kidney which was the seat of tuberculosis. In the third case, I removed a stone from a horseshoe kidney, having failed to diagnose the anomaly prior to operation. The case in which tuberculosis was found in half of a horseshoe kidney may require some explanation. Failure to recognize the anomaly was due to the fact that no pyelogram was made; apparently this was not deemed necessary after the diagnosis of renal tuberculosis had been established.

With the rapid development of modern urologic diagnostic methods, many of the so-called obscure urologic lesions are being recognized before operations; hence cases of horseshoe kidney should not go unmentioned. According to Braasch, 95 per cent of all cases of horseshoe kidney should be recognized before operation.

Formerly, many of the congenital renal anomalies were of interest only as necropsy observations, the result being that certain of them, it was alleged, were, indeed, rather uncommon. To this group belongs the so-called horseshoe kidney, which, as regards the frequency with which it is found at necropsy, has been the subject of statistical study for many years. Occasionally, this condition is found in the dissecting room. The frequency with which horseshoe kidney has been found at necropsy has been variously stated by authors writing on this subject as follows: Botez,[1] 1 in 715; Carlier and Gerard,[2] 1 in 862; Guizzetti and Pariset,[3]

* Read before the Section on Urology at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

1. Botez, G.: Considerations sur la pathologie et la chirurgie du rein en fer à cheval, J. d'urol. med. et chir. **1**: 193, 373, 503, 633, 1912.
2. Carlier and Gerard: Anatomie chirurgicale et chirurgie du rein en fer à cheval, Echo méd. du nord **16**: 429-439, 442-452, 1912.
3. Guizzetti, P., and Pariset, F.: Beziehungen zwischen Missbildugen der Nieren und der Geschlechtsorgane, Virchows Arch. f. path. Anat. **204**: 372-392, 1911.

1 in 1,142; Küster,[4] 1 in 1,100; Marynski,[5] 1 in 683; Morris,[6] 1 in 1,590; Motzfeldt,[7] 1 in 500; Naumann,[8] 1 in 598.

Whereas the older literature deals with this subject from the standpoint of necropsy data and statistics, at present there is being built up gradually a substantial clinical literature. In a general way the cases can be divided into two groups: (1) those in which the diagnosis was made before operation based on various clinical observations, and (2) those in which the diagnosis was made at the time of operation.

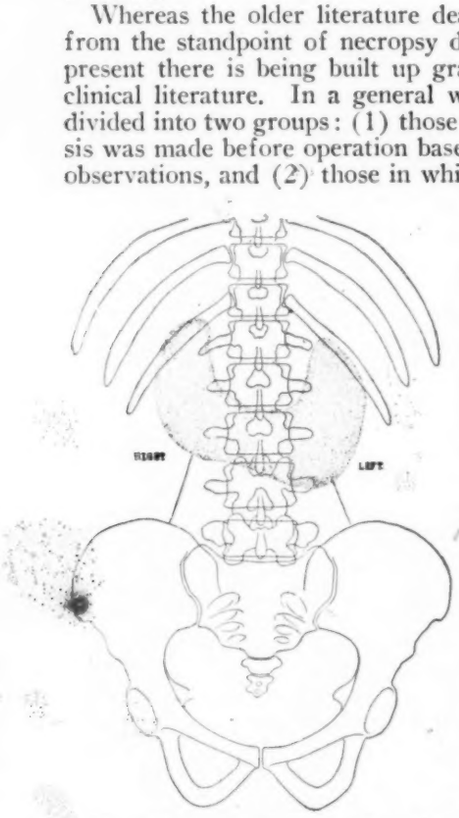

Fig. 1 (case 1).—Outline of horseshoe kidney demonstrated by plain roentgen-ray examination.

A preoperative diagnosis can be made in one of several ways, and these cases, for purposes of discussion, may be conveniently discussed under three groups: (1) cases in which the diagnosis is made from the plain roentgenogram; (2) cases in which the diagnosis is made from the roentgenogram, and in which there is associated disease; (3) cases in which a diagnosis of horseshoe kidney is made by pyelography.

CASES IN WHICH THE DIAGNOSIS IS MADE FROM THE PLAIN ROENTGENOGRAM

Up to the present time this group probably makes up the smallest number of cases recognized before operation, but with the improved technic in roentgenology, and with the perfection of the Potter-Bucky diaphragm, it should be increasingly more simple to recognize cases of horseshoe kidney before operation, or even before the employment of special urologic procedures, such as shadowgraph catheters and pyelography. In one case in this series in which no coexisting disease was present, the diagnosis of horseshoe kidney was made from the plain films alone. The outline of the fused mass of kidney tissue was clearly demonstrable in the film. This patient had no urologic complaint, and was roentgenographed for a low backache, for which he had consulted an orthopedic surgeon. The roentgen-ray examination was made by Dr. H. E. Potter, to whom I am indebted for the privilege of including this case in the report.

CASE 1.—Dr. S., a dentist, aged 40, consulted an orthopedic surgeon because of pain low down in his back. He had no other symptoms or complaints, and the previous history was negative. Roentgen-ray examination was made because of the backache. Dr. H. E. Potter reported that roentgenograms of the urinary tract showed no suspicion of calculi above or below. The kidney outlines were very distinct but quite altered in form and position. They were united at the lower poles in the form of a horseshoe kidney (fig. 1). Both the lateral and median margins were more vertical than usual. The upper margin of the right kidney was higher than was that of the left kidney. Instead of a lower pole formation, the outlines led directly across the spine at an average of the third lumbar vertebra. Dr. Potter could see no reason to make a pyelogram to establish a diagnosis of horseshoe kidney in this case.

CASES IN WHICH THE DIAGNOSIS IS MADE FROM THE ROENTGENOGRAM, AND IN WHICH THERE IS ASSOCIATED DISEASE

To the second group belong those cases in which the horseshoe kidney shows outlines in the roentgenogram similar to those in the cases in group 1. In addition to demonstrating in the roentgenogram the outline of the fused renal mass, other disease, if present, can be demonstrated; for example, stone. In one case, the diagnosis of stone in a horseshoe kidney was made from the outlines of the fused renal mass in the film, and the very mesial position of the stone. In this group must also be classed cases in which the renal mass can or cannot be seen in the roentgenogram, but in which coexisting pathologic conditions, such as the presence of stone or stones, and the arrangement of the stone shadow or shadows lead one to suppose that the patient has a horseshoe kidney. One of the characteristic, or supposedly characteristic, arrangements of calculi in horseshoe kidney is based on the fact that the stone or stones are supposed to be close to the median line. This, however, does not invariably occur, since in one of the cases in this series some of the stone shadows were distant from the median line. In the upper parts of the horseshoe the stone shadows were approximately in the usual position for stone. The renal mass, however, passed downward and inward toward the median line, carrying with it stones, so that the stones ran in a more or less oblique angle from the ribs toward the spine. From this fact alone, a preoperative diagnosis of multiple calculi in a horseshoe kidney was justifiable. A careful reading of the film disclosed the presence of a group of shadows on the opposite side of the vertebral column. The outline of the horseshoe kidney was not visible on this side in this film, but from the arrangement of the shadow of the renal mass, of the calculi, and of the shadows on the opposite side, a preoperative diagnosis of horseshoe kidney was made and was verified at operation.

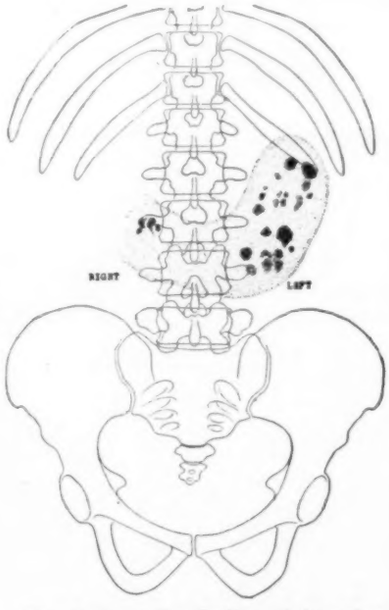

Fig. 2 (case 2).—Outline of horseshoe kidney harboring multiple calculi; collection of stones near the third lumbar vertebra on the right side.

CASE 2.—Mrs. E. J., aged 30, admitted to the Presbyterian Hospital, June 27, 1914, in the service of Dr. Benjamin Davis, had an attack of pain, three years before, in the left side which

4. Küster: Chirurgie der Niere, in Deutsche Chirurgie, Stuttgart, Enke, 1896-1902.
5. Marynski, G.: Zur Diagnostik der Hufeisenniere, Deutsche Ztschr. f. Chir. **133**: 281-298, 1915.
6. Morris, H.: Surgical Diseases of the Kidney and Ureter.
7. Motzfeldt, K.: Angeborene Missbildungen der Nieren und Harnwege, Beitr. z. path. Anat. u. z. allg. Pathol. **59**: 539-563, 1914.
8. Naumann, H.: Ueber die Häufigkeit der Bildungsanomalien der Nieren, theses, Kiel, 1897.

radiated across the back and anteriorly to the midline, with frequent and painful urination. The urine showed no blood but was cloudy. Since the clearing up of the acute attack three years before, the patient had suffered from pain in the left side at intervals of about three weeks, headache, nausea and insomnia. The urine was cloudy, and urination was frequent. The previous October she began to have severe pains again, which started in the region of the left kidney and extended into the bladder region and passed over the small of the back. At the same time, the urine became almost milky; there were spells of frequent and painful urination, and also nausea and vomiting. These attacks usually cleared up in one day. There were three attacks in October, and three more from May till November. The last attack began ten days before. No blood, stones or sand was passed.

At physical examination the pupils reacted normally. The lower teeth were poor and infected with pyorrhea. The throat was congested and the tonsils were somewhat enlarged. The heart and lungs were normal. Examination of the abdomen revealed a palpable mass in the left upper quadrant, more or less rounded in outline, firm, and movable to some extent. Deep pressure caused pain. The remainder of the abdomen was normal, the right kidney was palpable and not tender.

Blood examination revealed: leukocytes, 21,100; hemoglobin, 61 per cent. The blood pressure was 146. Examination of the urine showed albumin and pus. Catheterized urine from the right kidney was sterile on culture and free of pus; urine from the left kidney showed pus, albumin and *B. coli*.

Roentgen-ray examination revealed a collection of stone shadows which extended from the last rib downward and forward to the median line and were surrounded by a shadow of the kidney, which could be made out very definitely. The shadow of the renal mass passed across the spine, being obscured on the opposite side (right) by gas in the bowel. A collection of stone shadows could be seen on the right side just beyond the spinal column (fig. 2).

A heminephrectomy was performed by Dr. Davis, and the patient made an uneventful recovery.

CASES IN WHICH A DIAGNOSIS OF HORSESHOE KIDNEY IS MADE BY PYELOGRAPHY

The third group of cases are those in which a horseshoe kidney is suspected and in which a diagnosis of horseshoe kidney has been made tentatively, but in which the diagnosis is verified by means of the roentgenograph and pyelograms. In other words, the diagnosis is made by means of pyelography. In some of the cases a diagnosis cannot always be made before operation because the renal mass does not show. The pyelogram of a horseshoe kidney is a very well recognized picture. The pelvis is frequently convex and the calices point toward the median line. In this group of cases the renal shadow can often be made out. There were two cases in this series in which diagnosis was made on the typical pyelogram shadows.

CASE 3.—Miss O. K., aged 20, referred by Dr. O'Malley of Ohio, Ill., admitted to the Presbyterian Hospital, April 12, 1913, complained of pain in the left kidney area. In October, 1912, the patient had a sudden, sharp, severe pain in the upper part of the small of the back on the left side, which lasted several hours and recurred early the following day. She remained in bed two or three days during this attack. There were no chills, fever or blood in the urine. No sedatives were taken. Six weeks later, a similar attack occurred, even more severe in character. Five weeks after the second attack, three attacks were experienced, which were so severe that hypodermics of morphine were given, without relief, whereupon anesthetization with chloroform was done. When the patient awakened from the anesthetic, the pain stopped suddenly. Five weeks later, a fourth attack occurred; again morphine failed to give relief, necessitating the use of chloroform. Since the fourth attack there had been three further attacks. After being admitted to the hospital, another attack occurred, which did not respond to morphine, and a general anesthetic of chloroform was administered.

At the physical examination the pupils reacted to light and in accommodation. Knee-jerks were present. The mouth was normal, as were the chest, heart and lungs. Examination of the abdomen showed it to be thick and rather prominent. Palpation was unsatisfactory. The liver, kidneys, appendix and gallbladder area were normal.

Blood examination revealed: leukocytes, 15,200; hemoglobin, 80 per cent. The blood pressure was 110. Examination of the urine showed red blood cells and a few leukocytes.

A cystoscopy showed the bladder to be normal. The ureteral openings were normal and catheterized without difficulty; there was no obstruction. The urines from the right and left kidneys were sterile on culture and negative for tubercle bacilli.

A pyelogram showed a very faint outline of the renal mass, which ran across the spine at the level of the third lumbar vertebra. The pelvis on the right side showed the calices turned inward toward the spinal column and the convexity of the pelvis away from the median line. The pyelogram on the left side also showed a mesial position of the calices (fig. 3).

Fig. 3 (case 3).—Pelvis near spine; the outline of the renal mass and the mesial position of the calices may be noted.

CASE 4.—A physician, aged 43, referred by Dr. E. E. Irons of Chicago, had had an apoplectic stroke two years before, and two months before coming under observation a second stroke occurred. There was still some involvement of the left leg, evidenced by a limp.

At the time of admission there were hematuria, high blood pressure, apoplectic strokes and albuminuria. Blood had been present in the urine for three months, according to the patient's statement. The blood was well mixed with the urine, and the hematuria was painless. The urine was generally bloody for several days, at the end of which time it cleared up spontaneously. There were no other urinary symptoms. The patient also stated that he had hypertension, which was discovered at the time he applied for admission in the army, when his blood pressure, he was told, was 170.

A general physical examination showed the head, neck, and lungs normal. The heart showed a moderate hypertrophy; the vessels seemed soft, and the second aortic sound was accentuated. The abdomen was normal. Examination of the blood revealed 5,300 leukocytes and 76 per cent hemoglobin. The blood pressure was: systolic, 172; diastolic, 118.

Roentgen-ray examination revealed a rounded dense shadow high on the left side suggesting stone.

Examination of the urine on admission to the Presbyterian Hospital showed albumin, blood, red blood cells, and an occasional leukocyte.

Cystoscopy revealed a normal bladder. The ureteral orifices were in the normal position, and appeared to be normal. There was no obstruction to the passage of catheters. Examination of the urine obtained by the ureteral catheter revealed 60 pus cells per cubic millimeter in the bladder, 50 pus cells in the right kidney, and 170 in the left kidney. No organisms were obtained on Gram stains, and all cultures were sterile.

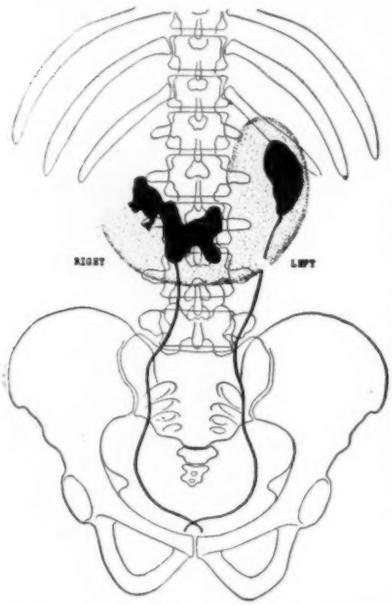

Fig. 4 (case 4).—Stone in left pelvis obscured by bromide solution; the shape and position of the right pelvis should be noted.

Urinalysis showed: urea, 27; uric acid, 3.1; creatinine, 1.25; nonprotein nitrogen, 27.

The first roentgenogram, made Dec. 29, 1923, by Dr. H. E. Potter, showed a fusion of the lower poles of the kidney, the renal mass extending across the vertebral column at the level of the fourth lumbar vertebra. The upper poles were widely separated and normal. In the region of the left half was seen a small shadow compatible with a stone in the pelvis.

Pyelograms showed the right catheter leading to a point over the body of the third lumbar vertebra, and the left catheter leading to a point 3 inches (7.6 cm.) to the left of the third lumbar, being much farther from the spine than usual. The pelvis of the right kidney overlapped the spine, and calices were seen irregularly projecting from the lower border. The left kidney pelvis included the stone, and also showed several calices projecting downward and at the median border. A soft tissue outline of horseshoe kidney could be made out as in the original plates (fig. 4).

CASE 5.—R. R., a man, aged 40, married, referred by Dr. George Dick, was admitted to the Presbyterian Hospital, July 1, 1919, complaining of pain in the abdomen, which for the past two years had been more or less evident, though never very severe or associated with nausea or vomiting and bearing no relation to meals. The attacks would come on at any time, last from half an hour to one hour, and then pass away. The pain, according to the patient, would leave after the bowels moved. The present attack came on suddenly with very severe pain in the abdomen. The patient was nauseated, and wanted to vomit, but did not. There was excessive perspiration. (This attack followed a spinal puncture, which was done the day before.) The past history was negative.

At the physical examination the pupils did not react either to light or in accommodation. The knee-jerks were lively. The teeth showed extensive pyorrheic infection. There was no rigidity of the abdomen, but there was tenderness over the epigastrium and costal margins. Two swellings could be felt, one on each side, which were apparently separate and located about a hand's width below the costal margins. The swelling on the left was larger—about 5 cm. in diameter; that on the right could be outlined entirely. The kidneys, ureter and bladder were normal. Rectal examination gave no evidence of palpable masses. The prostate was about normal in size but irregular.

Cystoscopy showed mild cystitis involving the neck of the bladder and trigon. There was some cystitis cystica. Ureteral catheters passed into the kidneys without difficulty or obstruction. A catheterized specimen from the bladder showed *B. coli* on culture. The urines from the right and left kidneys were sterile and free of pus.

Blood examination revealed leukocytes, 11,300; red corpuscles, 6,780,000; hemoglobin, 62 per cent. The blood and spinal Wassermann reactions were positive. There were albumin and leukocytes in the urine.

The roentgen-ray examination was negative for stone.

The pyelograms showed the kidney pelvis on the left side at the level of the lower margin of the first lumbar vertebra. There were calices turned downward and toward the midline extending to or perhaps slightly over the body of the third lumbar. The pelvis was of a fairly good size; the calices were a little broad and somewhat rounded in outline; the left pelvis was probably slightly hydronephrotic. The right pyelogram showed the kidney pelvis at the level of the fourth lumbar vertebra; the calices extended upward and toward the midline in a rather semicircular arrangement. One calix turned either front or back, so that it was overlying the kidney pelvis. The tip of the lower calix partly overlay the body of the fourth lumbar vertebra.

The diagnosis was horseshoe kidney (fig. 5).

COMMENT

As a general rule, horseshoe kidney can seldom be recognized by abdominal palpation, unless the kidney is enlarged. However, in three of these five cases the kidneys were palpable. This is a rather high ratio. As is well known, the two lobes of the fused renal mass are generally of unequal size. This was plainly demonstrable in roentgenograms. It has been suggested by various authors that a palpable mass in the midline is suggestive of horseshoe kidney. Bearing in mind this clinical dictum, we were led to make a tentative diagnosis of horseshoe kidney in case 5, which was verified by the pyelogram. It is also well known that the renal pelves in horseshoe kidney show a marked variation in size and shape, as well as in position. In case 3, there was a marked difference in the two pelvic outlines (fig. 3).

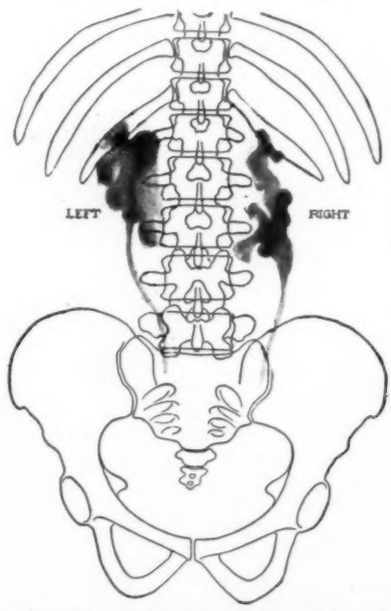

Fig. 5 (case 5).—The mesial position of the calices (right) and convexity of the right pelvis should be noted. On the left side the calices turn downward and toward the midline.

In connection with this congenital anomaly, various deviations from the normal, as regards the implantation of the ureter, occur. According to Judd, Braasch and Scholl,[9] the high implantation of the ureter and the sharp ureteropelvic angle, which prevent free drainage, are the most common causes of disease in these kidneys. It is generally believed that horseshoe kidney is more prone to be the seat of disease than is the normal kidney.

233 East Walton Place.

9. Judd, E. S.; Braasch, W. F., and Scholl, A. J., Jr.: Horseshoe Kidney, J. A. M. A. 79: 1189 (Oct. 7) 1922.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. STEVENS AND KRETSCHMER

DR. W. CALHOUN STIRLING, Washington, D. C.: Dr. Kretschmer's paper on horseshoe kidney is very timely, emphasizing as it does the frequency of this condition. It has been very difficult to diagnose before operation, and most of the cases have been found at necropsy or at the operating table. In a large series in the literature reported by Rathburn, only twenty-four cases were diagnosed before operation. Four of the twenty-four were found by palpation alone, showing that palpation should not be overlooked. As the author brought out, palpation will show, as a rule, the outline of the lower pole of the kidney if much enlarged and this, plus the pyelogram, will usually indicate the pathologic condition present. Judd called attention to the history of the cases in which the patient complains of pain around the umbilicus, and said that in these cases horseshoe kidney should always be suspected. The morbidity of horseshoe kidney is greater than its mortality, as it frequently results in hydronephrosis and pyelonephrosis. I was much interested in Dr. Stevens' paper on tuberculosis of the kidney. Braasch recently pointed out that the condition is bilateral much more frequently than was formerly thought to be the case. He found 25 per cent bilateral involvement, and stated that in the large majority of cases the roentgenographic observations were very helpful and were positive in 25 per cent. Fortunately for the patient, cystitis occurs early in most cases, and the patient is seen earlier except in the closed type of renal tuberculosis. As Dr. Stevens brought out, 83 per cent show tubercle bacilli in the urine, and this, with the moth-eaten appearance seen in the pyelogram, makes the diagnosis easy. The closed, or cortical, type of tuberculosis offers the greatest difficulty. In all cases a guinea-pig inoculation should be made and repeated frequently if tuberculosis is suspected.

DR. NELSE F. OCKERBLAD, Kansas City, Mo.: I have one slide of a horseshoe kidney which shows the commissure between the two halves. Dr. Kretschmer has called attention to a subject which undoubtedly will be very valuable. Because of the enormous number of pyelograms that are being made, we are bound to see these horseshoe kidneys from time to time, and if we are looking for them we can diagnose them before operation, from the data he has supplied in his paper. In my case I did not make the diagnosis before cutting down on it, but later I got the specimen.

DR. DANIEL N. EISENDRATH, Chicago: In data concerning 132 cases of horseshoe kidney which I collected, including three of my own, a diagnosis of the condition was made in only nineteen. It was made by palpation in ten cases in the era before our more modern diagnostic methods. Of the remaining nine, the anomaly was diagnosed in three by palpation also, but these were confirmed at necropsy and not by operation as in the preceding ten. In only six cases was the diagnosis made by roentgenography (plain) or supplemented by pyelography. The chief features of importance are the presence of a shadow corresponding to the isthmus; the proximity of calculous shadows (if present) to the spine and the same condition in respect to the pyelograms on one or both sides, i. e., very close to or even overlapping the vertebral column and with one or more of the calices directed medially, and finally the low position of the two halves of the horseshoe kidney, usually at the level of the lower lumbar vertebrae. In the second case, the patient died of miliary tuberculosis about six months after a pyelotomy for calculi in one half of the horseshoe kidney. At necropsy it was found that on this side a large number of calculi had reformed. This was favored by the insertion of the ureter whose opening was at least 1 inch (2.5 cm.) above the lowermost level of the pelvis. In a fourth case, a correct preoperative diagnosis was made by palpation supplemented by finding shadows on both sides at the level of the fourth lumbar vertebra, and by pyelograms indicating a bilateral hydronephrosis at this level with the ureters, ending on the extreme lateral (outer) end of each half. Bilateral pyelotomy in two sittings was successfully performed.

DR. FELIX BAUM, Denver: In the foreground of the discussion of renal tuberculosis today is the early diagnosis. I wish to call attention to an important early symptom: A urine which reacts acid in spite of the fact that it contains pus, and which is sterile, is found, according to Kümmel's statement, only in kidney tuberculosis. In every tuberculosis sanatorium, a routine animal inoculation with the urine should be made in every case, even if the patient shows no genito-urinary symptoms. Then it may be possible to find the early cases.

DR. T. LEON HOWARD, Denver: A few years ago I had an interesting case in a woman, aged 26, who had the tubes and ovaries removed by a general surgeon for tuberculous peritonitis. Her temperature continued high, and she finally developed some bladder symptoms. From the appearance of the right renal opening at cystoscopic examination, I suspected infection. The catheters passed without difficulty to the right kidney, but tubercle bacilli were found in several slides, and a guinea-pig died after being inoculated with urine from the infected kidney. The left kidney urine was normal. I removed the kidney, and on section nothing was found to account for the bacilli. The patient continued to have a certain amount of bladder irritation, and the urine still contained a few bacilli. Much to my surprise, the temperature did not become normal. The right vaginal fornix was tender on pressure, but this was accounted for by the pelvic work that had been done. We then passed a catheter up the stump of the ureter, and vaginally it could be felt to disappear into a tender mass. A laparotomy was again performed, and situated below the right broad ligament surrounding the ureter a caseous mass was found. Why did I get a culture from the pelvis of the right kidney unless a few drops of the pus entered the catheter that was passed? The patient did not have a renal tuberculosis, but she had this focus low down where the ureter went through the mass, and the bacilli were entering the urinary stream through the ureter at that area. This is the only case of this kind that I have ever seen. The other case was one in which I removed a prostate some years ago. The patient had as little bleeding from the prostate as I ever saw, but about twenty-four hours afterward there was some bleeding, and a blood clot obstructed the suprapubic tube. He had a bladder spasm, followed by sharp pain on the right side, went into shock, secreted no more urine, and died. At the necropsy it was plain to see what had happened. The bladder spasm had forced a blood clot up the right ureter, filling the right kidney pelvis of an unsuspected horseshoe kidney. This is the only case of horseshoe kidney that I have knowingly had.

DR. WILLIAM E. STEVENS, San Francisco: I have seen three cases of what I believe were horseshoe kidney, and there is no question in my mind that the most important aid to diagnosis is pyelography. By this procedure we see the abnormal position of the calices due to rotation of the kidney, the close proximity of the pelves to the spine, and the abnormally low position of the organ. Two of my cases were associated with pyelonephritis on the right side. This cleared up under irrigations with silver nitrate, and the patients passed from observation. The third case was the most interesting, and I have never found a similar one reported in the literature. The condition was probably a fused supernumerary kidney rather than a horseshoe kidney, but it might be classified as a horseshoe kidney with three pelves and three ureters. The ureter from the middle kidney ascended about 1.5 cm., then turned to the right, descending about 1 cm., where it fused with the right ureter. I agree with Dr. Kretschmer that we shall find more of these horseshoe kidneys if we look for them. Occasionally the urine is alkaline in the presence of tuberculosis of the kidney; and the absence of a growth on ordinary culture mediums, notwithstanding the presence of pus in an acid urine, although suggestive, is not positively indicative of renal tuberculosis.

Education.—Education is the harmonious and equable evolution of the human faculties by a method based on the nature of the mind for developing all the faculties of the soul, for stirring up and nourishing all the principles of life, while shunning all one-sided culture and taking account of the sentiments upon which the strength and worth of men depend. —Ruediger: Principles of Education.

SOME DIAGNOSTIC PROBLEMS IN THE HIP IN EARLY LIFE*

J. ALBERT KEY, M.D.
ST. LOUIS

Today we are diagnosing hip conditions in young people earlier and more accurately than ever before; yet it is true that with all the resources at our command we not infrequently are wrong in our early diagnosis, and occasionally are forced to treat obscure hip conditions over a long period of time without a definite diagnosis.

Having been puzzled by several obscure cases of hip disease which we have admitted to the Shriners' Hospital during the last year, I wish to attempt to evaluate our diagnostic procedures and the results which they may be expected to yield.

The diagnostic methods at our command are the history, physical examination, roentgenographic examination, tuberculin and Wassermann reactions, and studies on the blood, urine and feces. If there is a sinus a culture of the discharge can be taken. If there is not a sinus, the joint can be aspirated or explored, and the material examined bacteriologically and pathologically.

From a good history one is able to determine the presence of any facts in the family history that may have a bearing on the condition; the past history of the patient is examined especially for any preceding disease of which the hip condition may be a complication, and as complete a history of the present illness as possible is obtained. This last should include the duration, mode of onset, attributed cause, history of any preceding injury, general and local symptoms, and the course of the condition.

From a physical examination one determines the general state of health and nutrition of the patient, whether or not other joints are involved, the presence and character of the limp, the presence of sinuses or an abscess, signs of acute inflammation (local swelling, redness, heat and tenderness), atrophy and weakness of muscles, gross bone deformity or displacement, the position of the extremity, the amount of active and passive motion in the hip joint and whether or not it is painful, false motion, tenderness, chronic infiltration around the joint, enlargement of the regional lymph nodes, and whether or not the joint is sensitive to axial pressure. The special examinations that are of diagnostic value are the roentgen-ray, the leukocyte count, a Pirquet tuberculin test, a blood Wassermann test, and, in certain acute pyogenic hips, a blood culture.

The roentgen-ray examination is of little value in acute nontraumatic hip cases in which there has not been time for bone changes to occur, as it can show only swelling of the soft tissues and perhaps distention of the capsule or the presence of an abscess. In acute traumatic hip cases, it shows a fracture or a dislocation if one is present. It is most useful in those hip cases in which the condition is of sufficient duration to produce changes in the bone. In these, it shows deformity or displacement, atrophy, abnormality in structure, absorption and deposition of bone, and by the width of the joint space gives evidence of erosion of cartilage.

The leukocyte count, especially the differential count, aids in the diagnosis of an acute pyogenic infection.

Hip Conditions in Early Life

Etiology	Symptoms Begin In: Infancy	Childhood	Adolescence
Congenital deformity	1. Dislocation of the hip 2. Coxa vara		1. Coxa valga 2. Subluxation of the hip
Traumatic		1. Fracture of the neck of the femur 2. Mild synovitis	3. Acute epiphyseal separation
Nutritional	3. Scurvy	3. Rachitic coxa vara	
Infectious	4. Tuberculosis (rare) 5. Acute pyogenic (epiphysitis) 6. Gonorrheal arthritis 7. Syphilitic epiphysitis	4. Tuberculosis (common) 5. Acute pyogenic (osteomyelitis) 6. Gonorrheal arthritis 7. Chronic low grade osteitis of the neck of the femur 8. Acute arthritis following scarlet fever or measles 9. Rheumatic fever	4. Tuberculosis (not common) 5. Acute pyogenic (arthritis) 6. Gonorrheal arthritis 7. Acute apophysitis of either trochanter 8. Acute arthritis following scarlet fever or measles 9. Rheumatic fever
Unknown		10. Osteochondritis (Legg, Calvé, Perthes) 11. Chronic polyarthritis 12. Arthritis deformans juvenilis 13. Mild transient arthritis 14. Chronic monarticular arthritis of indefinite type	10. Epiphyseal coxa vara 11. Chronic polyarthritis 12. Bone cysts or tumors

The tuberculin reaction, if negative, is useful in excluding tuberculosis, but if positive it is not of much importance, especially in patients over 4 years of age.

The Wassermann reaction is of relatively little importance because we know that with the exception of syphilitic epiphysitis (the pseudoparalysis of Parrot) which occurs only in infants, syphilis plays little or no part in pathologic conditions of the hip in early life.

The foregoing information, properly interpreted and correlated, will enable one to make a definite diagnosis in about 80 per cent of the hip cases that are seen. The diagnosis is expedited if one forms the habit of looking for the common things first, and by a recognition of the fact that there is a marked tendency for certain conditions of the hip to begin, or at least to cause symptoms first in certain age periods. In the accompanying table are given most of the conditions that affect the hip in early life, and the age periods during which they tend to begin to cause symptoms. Pseudarthritis of the hip due to psoas spasm from an abscess, osteomyelitis of the pelvis, infantile paralysis or hysteria is not included in the table, but may be excluded by the examination.

In considering the diagnosis I am accustomed in my own mind first to decide roughly whether it is a congenital or acquired deformity, or an inflammatory lesion. In the case of a deformity, the physical examination,

* Read before the Section on Orthopedic Surgery at the Seventy-Seventh Annual Session of the American Medical Association, Dallas, Texas, April, 1926.

confirmed by a roentgenogram, usually enables one to make a definite diagnosis. In inflammatory lesions, the diagnosis is more difficult. In acute lesions, the roentgen-ray examination shows no bone changes, and in chronic hip cases the bone changes may be atypical and not characteristic of any known condition. In the presence of a negative roentgen-ray examination it may not even be possible to determine whether the lesion is in the hip joint or in the adjacent bone or soft tissues, though usually a careful physical examination and analysis of the movements of the hip will incriminate or exclude the joint.

In the cases in which there is uncertainty as to the diagnosis, it must be decided whether or not the patient is acutely ill with a pyogenic infection in or near the hip joint. If this seems to be the case, then I explore the region and drain the focus wherever it may be. I am aware that sometimes acute tuberculous hips will be opened but think that on the whole less harm will be done than by waiting.

If the patient is not acutely ill, there are three procedures open: (1) To do nothing and examine the patient at weekly intervals until the condition either clears up spontaneously or progresses to such a degree that either the diagnosis is clear or the symptoms demand treatment; (2) to treat symptomatically and conservatively, and (3) to aspirate or explore the joint and remove material for examination.

If the condition of the hip is not very acute, it is probably better to observe it for a time without any treatment, because rest and immobilization may cause the symptoms to quiet down and thus postpone the diagnosis of a serious condition, or may result in prolonged immobilization of a normal joint. If the symptoms persist and the diagnosis remains obscure, the hip can either be treated conservatively or explored. I believe that we are justified in exploring only those hips which have not been improved by treatment.

If the hip comes to arthrotomy, what are the chances of making a definite diagnosis? Culture may yield a growth of organisms, usually cocci; guinea-pig inoculation and examination of tissue removed at operation can determine whether or not it is tuberculous. If the culture is sterile and the guinea-pig does not develop tuberculosis, we have eliminated tuberculosis with a fair degree of certainty, but have not made a diagnosis. The pathologic study of the synovial membrane, bone or cartilage removed at operation reveals a chronic inflammatory reaction of a nonspecific character. We then are forced to treat the patient symptomatically without a definite diagnosis.

The pathologic observations in these obscure hip cases should be recorded because it is possible that at some future date we may be able to outline a characteristic picture which is significant of a definite clinical entity.

The series of hip cases presented here in a way illustrate what I have just said. Some of these are still undiagnosed. In one tuberculous hip case, the diagnosis was not made until an abscess appeared about three years after the onset of symptoms.

REPORT OF CASES

CASE 1.—C. W., a boy, aged 9, was admitted, Oct. 16, 1925, because of a limp. One year before, the patient had jumped from a height of 18 feet and injured the right hip. There was considerable pain at the time, but very little swelling. He was in bed four months, and then began to walk on crutches. The crutches were gradually discarded and the pain did not return, but the limp persisted.

The hip was in a position of 60 degrees flexion and 15 degrees adduction. There was moderate muscle atrophy but no shortening. There was practically no motion in any direction except a slight amount in flexion. Motion was painless and there was no tenderness. Roentgen-ray examination revealed a slight rarefaction of the right femur and pelvis. The joint space was clear. The head of the femur was slightly irregular in outline and there was subchondral rarefaction around the circumference of the head and in the roof of the acetabulum. There was some thickening of the upper border of the head which seemed to block abduction.

October 22, a Soutter fasciotomy for the correction of flexion deformity of the hip and adductor myotomies were performed, and traction in abduction was applied. One month's traction resulted in very little correction of the deformity. There appeared to be a bony block at the hip.

November 23, an arthrotomy was performed. With the exception of the cartilage covering the superior portion of the head of the femur, all the structures looked normal. Here, over an area about 2 cm. in diameter, the cartilage was roughened and thickened. This thickened cartilage was removed and the wound was closed.

The pathologic report stated that in many areas the cartilage was in various stages of fibrosis, and its deep surface was invaded by several finger-like processes of vascular granulation

Fig. 1 (case 1).—Arthritis of the right hip following a severe trauma; duration, one year.

tissue. A few of these perforated the cartilage, and the young connective tissue extended a short distance over the free surface. There was no infiltration with leukocytes or small round cells. The cartilage cells were in many areas very irregular in arrangement and the number of cells to a field varied greatly in different parts of the specimen.

Feb. 14, 1926, the deformity was not yet completely corrected. The hip was painless, but no motion could be demonstrated in any direction.

February 15, under gas-oxygen anesthesia, the hip was manipulated into a good functional position and a plaster spica was applied.

The diagnosis in this case was traumatic arthritis following a severe contusion of the hip. The result will probably be an ankylosed hip.

CASE 2.—C. W., a boy, aged 8, was examined, Jan. 16, 1925, because of a limp. The limp began about three years before and was attributed to a slight injury which the patient received when he was thrown against a fence. The onset was gradual, and the condition had remained about the same during the past two years. There had been some pain in the hip from time to time, but at no time had the pain been severe.

The right hip was in a position of slight flexion and adduction. There was moderate muscle atrophy and slight shortening. The trochanter was unusually large and prominent, and slightly higher than normal. Flexion was free, but all other motions were limited. Motion was painless and the hip was not tender. A tuberculin test was negative. Roentgen-ray

examination revealed the neck shortened and much thickened, and the bone structure worm-eaten in appearance. The head of the femur was represented by a small islet of rarefied bone at the median angle of the neck. The epiphyseal line was represented by a narrow rarefied zone which separated the remnant of the head from the hypertrophied neck. The thickening of the neck was most marked in the subepiphyseal zone and was apparently due to a marked proliferation of the epiphyseal cartilage (fig. 2). The acetabulum was enlarged and irregular. The joint space was clear and there was no bone atrophy.

Fig. 2 (case 2).—Atrophy of the head and hypertrophy of the subepiphyseal region of the neck of the femur, three years after onset of symptoms.

When next examined, March 17, 1926, the patient had been using a walking caliper splint for the past year. The condition was practically unchanged except that on extending the hip a swelling was visible and palpable over the front of the joint. There was no pain or tenderness, and the swelling seemed to be due to a deep seated mass which was attached to the bone. The roentgen-ray examination showed a moderate increase in the size of the greatly thickened neck and of the small mass that represented the head. The bone structure was more dense than in the previous roentgenogram.

March 12, an arthrotomy was performed. When the capsule was opened anteriorly, a large rounded mass of apparently normal articular cartilage was brought into view. This extended for some distance down over the neck and appeared to be the enlarged and flattened head of the femur. The mass of cartilage was too large for the acetabulum, and subluxated anteriorly when the hip was extended. There was

Fig. 3 (case 3).—Obscure monarticular arthritis of the right hip; duration, two years, three months; the rarefaction of the bone is due to three months' immobilization, and was not present when the patient was first seen.

no excess fluid in the joint and the synovial membrane was normal in appearance, though the capsule was possibly a little thinner than normal.

This case was diagnosed as apparently a hyperplasia of the epiphyseal cartilage, with atrophy of the head of the femur; it might be classed as an atypical Legg's disease.

CASE 3.—C. F., a boy, aged 4, was admitted, Sept. 16, 1925, because of a limp. The onset occurred two years before with high fever, and acute pain in the hip which lasted only one day. The hip remained quite painful for a week or so, and then the pain gradually disappeared but a slight limp persisted. Six months before admission, the patient fell and injured his knee. A plaster cast was applied and worn for seven weeks. The limp remained about the same.

The right hip was fixed in 90 degrees flexion, 10 degrees adduction and 20 degrees external rotation. There was about 5 degrees of motion in flexion, and practically no motion in any other direction. The fixation seemed to be due to muscle spasm. There was no pain, tenderness or swelling. Roentgen-ray examination revealed the neck of the femur slightly thickened, especially at its proximal end. The head was slightly larger than the head of the other side and its surface was irregular. The acetabulum was slightly enlarged. The joint space was clear. There was slight rarefaction of the right femur and pelvis.

The deformity was corrected by traction and a plaster spica was applied, October 23.

March 24, 1926, the plaster was bivalved and the parents were instructed to remove it during part of the day to let the child begin to move the hip, but to avoid weight bearing.

The diagnosis was: chronic arthritis of the right hip, of unknown type.

Fig. 4 (case 4).—Obscure arthritis of the left hip, one year, eight months after onset of symptoms; function of the hip is approximately normal.

CASE 4.—J. D., a boy, aged 11, was admitted, Jan. 20, 1925, because of a limp. About a year before, the patient began to limp and the leg seemed to grow shorter. There was no preceding injury and at no time had there been any pain or swelling. The limp was getting worse.

The left hip was in a position of 45 degrees flexion and 20 degrees adduction. Flexion was free but all other motions were limited. There was no pain or tenderness. Roentgen-ray examination revealed the neck of the femur moderately thickened. The head was slightly flattened and broadened. The surface of the head was irregular and its structure uneven. In the superior part of the head, there was a rarefied area which contained what appeared to be a small sequestrum. The acetabulum was slightly enlarged and irregular in structure and contour. The joint space was cloudy and there was slight rarefaction of the left femur and pelvis.

January 22, a tenotomy of the adductors and manipulation of the hip was performed, followed by traction in abduction for one month. By September 23, the patient walked without a limp and had no pain. There was internal rotation to 15 degrees, abduction to 20 degrees, and flexion to 110 degrees. Other movements were free. The roentgen-ray appearance was practically unchanged.

The diagnosis was: chronic arthritis of the left hip of unknown type.

This resembles the condition sometimes called arthritis deformans juvenilis coxae. The symptoms were relieved by correction of the deformity followed by one month of traction and freedom from weight bearing.

CASE 5.—R. B., a boy, aged 12, was admitted, Jan. 13, 1926, because of a limp. There had been a gradual onset three years before following an indefinite injury. The patient had some pain at times in both hips, but the hip condition had never been acute. The condition had been stationary for two years.

The left hip was in a position of 35 degrees flexion and 15 degrees adduction. There was moderate muscle atrophy, but no shortening. The trochanter was unusually prominent but was not elevated. The hip could be flexed to 80 degrees, but there was no motion in any other direction. Motion was painless and there was no tenderness. Roentgen-ray examination revealed the neck of the femur thicker and the bone structure more coarse than normal. The head of the femur was flattened, and there was a hollowed out defect in the upper half of the head. The joint space was not clear, and there was an area of rarefaction in the acetabulum opposite the defect in the head of the femur. A tuberculin test was negative.

January 15, traction was applied to both legs and the deformity was gradually corrected.

February 15, massage and corrective exercises were started. By March 3 the hip was painless and all movements were normal except abduction, which was limited about one third.

No definite diagnosis was made. There had been a localized destructive lesion of the head of the femur and of the adjacent surface of the acetabulum. The symptoms have been relieved by correction of the deformity and physiotherapy.

CASE 6.—F. H., a boy, aged 7, entered, Nov. 6, 1925, because of pain and limp in the left hip. About a year before, after a fall, the pains and limp developed gradually in the left hip. The patient was taken to the city hospital, and his condition was diagnosed tuberculosis of the hip. While there, he developed scarlet fever and was in the isolation hospital several months. He had had no treatment since. The limp persisted, but he had very little pain.

The left hip was in 45 degrees flexion, and flexion was possible to 70 degrees, but there was very little motion in any other direction. There was moderate thickening over the joint, and the trochanter was prominent and larger than normal. There was no pain or tenderness. Roentgen-ray examination showed the neck of the femur moderately thickened and shortened, and the angle with the shaft decreased. In the substance of the neck there were two irregular areas of rarefaction in which there were small dense areas, probably sequestrums. The head of the femur was slightly flattened and broadened, and the acetabulum was enlarged. The joint space was clear.

Fig. 5 (case 5).—Destructive lesion of unknown etiology in the left hip, three years after the onset of symptoms; all symptoms were relieved by conservative treatment.

Jan. 12, 1926, the neck of the femur was drained through the trochanter. A culture made at the time of the operation was sterile, but two days later a rather profuse purulent discharge appeared and the culture showed *Staphylococcus aureus*. The bone removed at operation was unusually vascular, and contained some areas of fibrosis and round cell infiltration.

The diagnosis was: low grade pyogenic osteitis of the neck of the femur.

CASE 7.—J. S., a boy, aged 4, was admitted, Oct. 22, 1924, because of tuberculosis of both hips. The onset was three years before with fever and pain in the left knee. The child had been treated by a chiropractor and the symptoms had increased. Then a cast was applied. Six months before admittance the right hip became involved and a double spica was applied.

The patient was a pale, emaciated boy in a double spica. Both hips were acutely tender and sensitive, and no motion was permitted because of muscle spasm. There was a moderate amount of periarticular thickening on the left and considerable thickening over the right hip with an abscess in the right groin. Roentgen-ray examination of the left hip showed that the head and upper portion of the neck of the femur were gone and that there was some destruction of the roof of the acetabulum. Similar examination of the right hip, showed some erosion of the upper surface of the femur and of the roof of the acetabulum. The joint spaces were relatively clear, and there was extreme rarefaction of the pelvis and both femora. A tuberculin test was positive.

Nov. 10, an incision was made and the abscesses were drained. A culture was negative. Guinea-pig inoculation produced an indurated nodule 2 by 2 by 1 cm. filled with cheesy substance. A smear gave no tubercle bacilli but an enormous number of cocci.

Fig. 6 (case 6).—Low grade pyogenic infection in the neck of the femur, duration, one year, three months; the joint is not infected.

A pathologic examination of the abscess wall showed tuberculous granulation tissue; no bacilli were seen.

December 31, an abscess of the thigh was aspirated.

March 30, 1925, an abscess of the right buttock was incised and drained.

May 4, active and passive motion of both hips was begun. Heliotherapy was continued.

March 17, 1926, the sinuses were all closed, and the general condition was good. There was about 50 degrees of motion in the left hip and practically no motion in the right hip.

Roentgen-ray examination showed that the heads of both femors had been destroyed, and all that was left of the neck of the left femur was a short spur of bone about one-fourth inch in diameter. There was considerable destruction of the upper portions of both acetabula, and there were several small punched out areas in the right ischium. The bones were considerably more dense than at previous examinations, and the margins sharply defined. The joint spaces were clear.

Fig. 7 (case 7).—Low grade pyogenic infection of both hips; duration, four years, four months.

The diagnosis was: arthritis of both hips due to an unidentified type of micrococcus.

Unfortunately, the guinea-pig inoculation was done in an outside laboratory, and later we were not able to identify the causative organism in the open sinuses.

CASE 8.—L. M., a girl, aged 7, was admitted, Oct. 7, 1924, because of a limp. The father died of tuberculosis. Two and a half years before admission, she suddenly began to have severe pain in the right hip. The pain was worse at night. There was no record of the temperature. The hip condition gradually quieted down, but the limp persisted. During the past six months, the limp had been increasing but there had been very little pain.

Fig. 8 (case 8).—Tuberculosis of the right hip: The unusual position of flexion, abduction and external rotation was present two years after the onset of symptoms.

The hip was in 45 degrees abduction with moderate flexion and marked external rotation. There was practically no motion in any direction. There was moderate muscle atrophy, and no pain, tenderness or swelling. Roentgen-ray examination revealed considerable rarefaction of the right femur and pelvis. Because of the position, the neck of the femur was not clearly visible. The head of the femur had a poorly defined, fuzzy outline and the joint space was cloudy. A tuberculin test was +; a Wassermann test, + + + +.

November 21, under exercises the condition seemed to be slightly improved.

Feb. 4, 1925, the hip was put in traction to correct the deformity.

February 18, it was manipulated gently under anesthesia, and a spica was applied with the hip in adduction, hyperextension and internal rotation.

April 15, the plaster was bivalved; exercise and massage were given.

June 10, the plaster was removed and the patient was given crutches.

By July 1, the position was good and the crutches were discarded.

July 29, the deformity had recurred.

September 16, there was considerable thickening around the joint and the deformity was increasing. The position of the hip was: flexion, 45 degrees; abduction, 30 degrees; external rotation, 45 degrees. There was practically no motion.

November 11, there was an abscess in the thigh, which was incised and drained the next day. The pathologic report on a portion of the wall was tuberculous granulation tissue, and a guinea-pig inoculated with the pus developed tuberculosis.

The diagnosis was: tuberculous arthritis of the right hip.

Because of the sudden onset, the position of the hip, the lack of pain, and the absence of definite erosion of the articular surfaces, my preliminary diagnosis in this case was a low grade, perhaps pyogenic, arthritis which had subsided and left the hip in a position of deformity.

CONCLUSIONS

1. Hip conditions that differ widely in etiology may present practically identical clinical and pathologic pictures.

2. In many instances a correct diagnosis can be made only after months or years of observation under treatment, and occasionally it is not possible to make an exact diagnosis.

3. By guinea-pig inoculation and the examination of material removed at operation, one can determine whether or not the hip is tuberculous; but if the hip is nontuberculous, the pathologic report is usually chronic inflammation, and this aids but little in the diagnosis.

4. Certain hip conditions tend to begin to cause symptoms in definite age periods. A recognition of this fact is of considerable aid in diagnosis.

5. Many of the chronic obscure hip conditions that occur in children can be relieved by conservative treatment.

6. Exploratory arthrotomy for the purpose of diagnosis is not justified until the condition has failed to respond to conservative treatment.

Shriners' Hospital.

ABSTRACT OF DISCUSSION

DR. RALPH K. GHORMLEY, Boston: The very most important question of all is the differential diagnosis between cases of so-called traumatic arthritis and tuberculosis. In going over the roentgenograms and histories of the cases of proved tuberculosis of joints, of which we have about eighty, about twenty being hip cases, we have found that so far as the history is concerned, a great many of those had a history of injury and apparent recovery, and then a definite tuberculosis in the hip developed. The roentgen ray, so far as it is helpful in the early cases of tuberculosis, we cannot depend on at all. We can demonstrate tuberculosis not only in the synovial membrane but in the bone as well when there is no change seen in the roentgenogram except possibly a very slight atrophy, maybe a slight amount of thickening of the synovial membrane. We place a great deal of reliance on the tuberculin reaction. If it is negative and is carefully done, tuberculosis can be ruled out. But the tuberculin test must be done carefully and with good tuberculin. So far as biopsies are concerned, in a traumatic hip with atrophy, and some fixation of the joint, if conservative treatment is continued the atrophy will probably continue and so will the fixation of the joint. There may or may not be tuberculosis there, and I do not know any way to find out about it except to go into the joint.

Fig. 9 (case 8).—Tuberculosis of the right hip; duration, three years.

Our experience with biopsies has been that we have been able only in about from 60 to 70 per cent of them to find tuberculosis if it is there. One cannot go into the bone and destroy the cartilage when it has not already been destroyed when one does a biopsy; but if a careful exploration is done (and I usually use a posterior approach to the hip joint), whatever fluid is present may be withdrawn, and such tissue as is easily removed from the edges of the cartilage and the edges of the acetabulum cut away. If this tissue is not only examined microscopically but is macerated and injected into guinea-pigs, if the fluid is examined bacteriologically and chemically in most of the cases tuberculosis can utimately be

proved. One word about guinea-pigs. By the intraperitoneal method a great many cases of tuberculosis will be missed, because that apparently will take care of the tubercle bacilli in small numbers, whereas the other method will practically always yield the tubercle bacilli, and a lesion can be seen in ten days or two weeks and a reasonably sure diagnosis of tuberculosis made.

DR. LEROY C. ABBOTT, St. Louis: Dr. Key has shown how difficult it is to arrive at a positive diagnosis in many of these obscure lesions of the hip joint. In the pyogenic hip, from the history and examination, a positive diagnosis can usually be made; this applies also to most of the cases of tuberculosis. There is one interesting thing that has developed in connection with some of these cases of obscure arthritis of the hip joint. In this group there had been an inflammatory lesion in the joint which had produced a very marked deformity of flexion and adduction. The duration of the condition was in some instances ten or twelve years. One would judge that the deformity in these cases must be corrected by some operative procedure either in the nature of an osteotomy or a direct attack on the joint. There have been three of these patients in whom we have applied simple traction on both legs. To my surprise we have been able, despite the severe deformity and the marked destruction shown in the roentgenograms, to correct the deformity and restore a useful range of motion.

DR. BEN L. SCHOOLFIELD, Dallas, Texas: I want to report a condition that has not been mentioned. A boy was sent to me about two years ago. He had considerable stiffness and limitation of motion about the hip joint, and the roentgen ray showed a marked encroachment on the pelvic cavity by the ischium where it had separated from the other bones entering into the cotyloid cavity. We were able to correct this by putting the child under an anesthetic, carrying the limb out into complete abduction, putting it up in a short plaster spica, holding it that way, and after the end of about six months, this had pretty well consolidated. He still has a good bit of stiffness in the hip joint and some limitation of motion.

DR. C. B. FRANCISCO, Kansas City, Mo.: A few years ago almost all the cases of hip joint conditions in children were considered tuberculous; then the Legge-Calve condition was established practically as a clinical entity; and now a new condition appears. I wish to stress what Dr. Key said about the age limit and the age period of these conditions. I think that helps us greatly, and I am surprised often that the limits are not known better. Dr. Key said that a Legge-Calve condition occurred at approximately 4 or 5 years of age. I consider that a definite time. It does not appear in infancy or later, and it is quite a definite thing. As he mentioned, there are other conditions that appear later. The puzzling case to me is the one that shows marked change in the roentgenogram with no symptoms in the hip. I am seeing a number of those cases and have followed several through. The change progresses: there is no muscle spasm; there is no limitation of motion, and there is no pain. The child is not the type of a tuberculous child; he is well nourished and continues to grow. This process advances, finally seeming to harden up, and the patient has an appearance similar to the Legge-Calve condition, except that the acetabulum is involved also. I have not done biopsies in those cases because it did not seem to me to be justifiable. They do not fit in with any classification of hip joint disease that is known to me.

Value of Research in Medicine.—The knowledge on which the art of medicine is based has been gained by work done on scientific lines, by methods of observation and experiment. All the great therapeutic advances of recent times have been the outcome of scientific investigation; and in medicine, as in other sciences, investigations carried out with no practical aim have proved very fruitful in practical results. It is to scientific research that we owe aseptic surgery and all that it has rendered possible, the conquest of insect-borne disease, the banishment of the typhoid terror from campaigns, the discovery of the vitamins and the utilization of hormones.—Garrod, Archibald: *Brit. M. J.* **2**:622 (Oct. 9) 1926.

FAILURE OF THERAPEUTIC MALARIA IN TREATMENT OF LEUKEMIA*

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For many years it has been known that intercurrent infections occurring in the course of leukemia are accompanied by a fall in the number of leukocytes. Indeed, it has been hinted in medical textbooks that long remissions may be produced by such complicating diseases. Neutra,[1] in 1903, collected twenty-one cases from the literature, in all of which there was a marked fall in the white cells. Dock,[2] in 1904, in a similar survey of reported cases, found thirty-three cases of leukemia in which intercurrent infections were accompanied by a fall in the leukocytes. Seven of these were miliary and four chronic tuberculosis. The remainder comprised sepsis, typhoid, erysipelas, influenza, empyema and streptococcus, colon bacillus and staphylococcus infection. In only three cases was there a rise in the leukocytes coincident with the infection. In one, the complication was bronchitis, in one, streptococcus infection, and in the third, peritonitis. Apparently the conclusion that infection tends to correct the abnormal blood condition, at least temporarily, is justified in a great majority of cases.

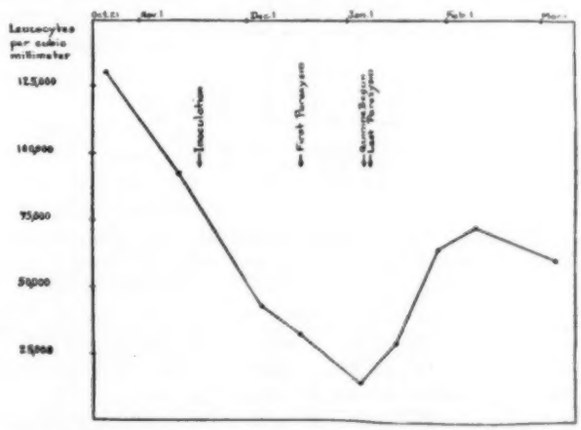

Chart 1.—Course of the leukocyte count in a case of myelogenous leukemia inoculated by Schupfer with Plasmodium malariae.

Such cases, amounting at times to a complete symptomatic cure, early led to the suggestion that such an infection might be used in leukemia as a curative measure. The difficulty, however, lay in securing a disease that could be inoculated at will, and eliminated with promptness and certainty when the effect on the leukocyte production had reached the desired degree. None of the infections on which the observations had been mentioned were properly amenable to cure, and in many the therapeutic transfer would not have been easy. A trial of quartan malaria was made in 1904 by Schupfer.[3] He injected 4 cc. of blood containing a double infection of *Plasmodium malariae* into the vein of a patient with myelogenous leukemia. During the thirty day incubation period (in which there was a low irregular fever) the number of leukocytes fell

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* From the Hospital of the University of Pennsylvania.

1. Neutra, W.: Ueber den Einfluss akuter Infektionskrankheiten auf die Leukämie, Ztschr. f. Heilk. **24**: 349, 1903.
2. Dock, George: The Influence of Complicating Diseases upon Leukaemia, Am. J. M. Sc. **127**: 563, 1904.
3. Schupfer, F.: L'influenze che sulla Leucemia Esercitano le Malattie Infettive Intercorrenti ed il suo Valore Terapeutico, Policlinico (sez. med.) **12**: 145 (April) 1905.

from 92,000 to 32,000 (chart 1), and during a further period of febrile paroxysms extending over eighteen days to 13,600. There was, however, no striking change in the proportion of the various types of leukocytes present. After the chills were stopped by quinine, the leukocyte count rapidly rose, reaching twice the minimum in a week and 70,400 a month later. During the period of the infection the red cells fell from 3,244,000 to 1,984,000, and the hemoglobin from 53 per cent to 35 per cent. A further disadvantage of the treatment was shown by the fact that there was a relapse with chills and malarial organisms in the blood some weeks after quinine had been given.

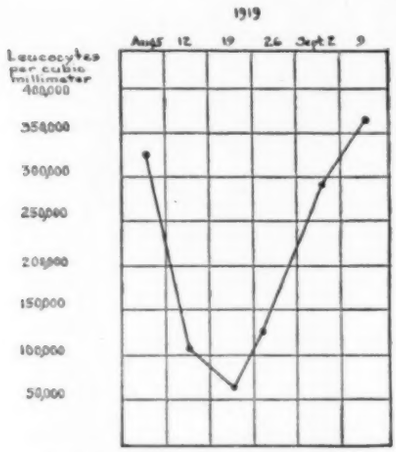

Chart 2.—Curve of the leukocyte count in the case of myelogenous leukemia with intercurrent tertian malaria, reported by Macfie.

The recent enthusiasm for and widespread use of tertian malaria in the treatment of general paralysis has demonstrated that it has some of the qualities desired for an intercurrent infection. It is readily inoculable and, in the nonquinine-resisting strains, can be cured when desired. Its relative safety has been shown in several series of cases. That tertian malaria could depress the white count in leukemia was known from two cases of accidental infection reported by Macfie.[4] In the first, a lymphatic leukemia, the number of leukocytes fell from 286,000 to 59,000 during the malarial paroxysms, but the ultimate course could not be followed for the patient left the hospital. In the second, a case of myelogenous leukemia (chart 2), the white cells decreased from 326,250 to 62,900 during the infection, but promptly rose to the previous level. Rosenow[5] also reports a case in which, during the active stage of tertian malaria, the white blood cells decreased from 74,000 to 11,750, only to rise again to 55,000 in the days after the paroxysms had been arrested.

Although no permanent favorable influence had been recorded, there was enough evidence available to make tertian malaria seem worthy of a therapeutic trial. The uniformly unfavorable prognosis of leukemia amply justifies whatever risk may be involved.

At the suggestion of Dr. Alfred Stengel, two patients with leukemia were, accordingly, selected from the wards of the University Hospital. The nature of malaria and the experimental nature of its use in leukemia were fully explained to them, and their consent secured. They were then inoculated with a strain of *Plasmodium vivax* which had already been used for therapeutic purposes, and which had been shown to be promptly curable by quinine. Five cubic centimeters of blood from a patient in the paroxysmal stage was in each case injected intramuscularly.

4. Macfie, J. W. S.: A Note on the Occurrence of Leukemia in the Natives of West Africa, Report of the Accra Laboratory for the Year 1916, London, J. and A. Churchill, p. 39; An Observation of the Effect of Malaria in Leukemia, Ann. Trop Med. **13**: 347 (March) 1920.

5. Rosenow, G.: Ueber die Beziehungen der Malaria zur Leukämie, Deutsch. med. Wchnschr., Sept. 26, 1918, p. 1070.

Patient 1, with lymphatic leukemia (table 1 and chart 3), developed a febrile paroxysm on the fifteenth day after inoculation, and was allowed to have four chills before quinine was given, a fifth occurring during its administration. The leukocytes, which had numbered 240,000 at admission and 140,000 just after inoculation, fell rapidly with the onset of paroxysms, reaching a minimum of 34,000 on the day of the last chill. It was hoped that this symptomatic cure might be permanent, but six days later the number had risen to 191,000, and they continued near this level until discharge.

TABLE 1.—*Blood Count in Case of Lymphatic Leukemia after Inoculation with Plasmodium Vivax*

Date, 1925	Leukocytes per C.mm.	Neutrophils, %	Lymphocytes, %	Large Mononuclears, %	Erythrocytes per C.mm.	Hemoglobin, %	
4/29	240,000	0.8	99.2	...	2,460,000	47	
5/ 5	246,000	1.8	98.2	...	2,600,000	48	
5/13	140,000	1	99	...	2,800,000	50	Malarial inoculation
5/17	172,000	1	99	...	2,400,000	45	
5/26	160,000	0.2	99	0.8	2,000,000	42	
5/28	.....	...	....	...	.....	..	First paroxysm
6/ 2	43,500	1	98	1	1,520,000	30	
6/ 3	54,400	...	....	...	1,520,000	30	
6/ 4	.....	...	....	...	.....	..	Quinine began
6/ 5	34,000	1	98	1	.....	..	Last paroxysm..
6/ 8	83,800	1	98	1	1,610,000	30	
6/11	191,000	...	....	...	.....	..	
6/15	215,000	1	98	1	1,520,000	32	

An unfavorable result of malaria which was especially prominent in this case was its hemolytic effect. In the presence of an already inadequate erythrocyte-producing mechanism, this led to a severe anemia. The red cells, which had been 2,460,000 at admission, fell to 1,520,000, and the hemoglobin from 47 per cent to 30 per cent. Unlike the white cells, they did not return promptly to the previous level after the administration of quinine. Because of the anemia, it was thought unwise to give roentgen-ray treatment at this time, and the patient was accordingly discharged. He is reported to have died a month or two later.

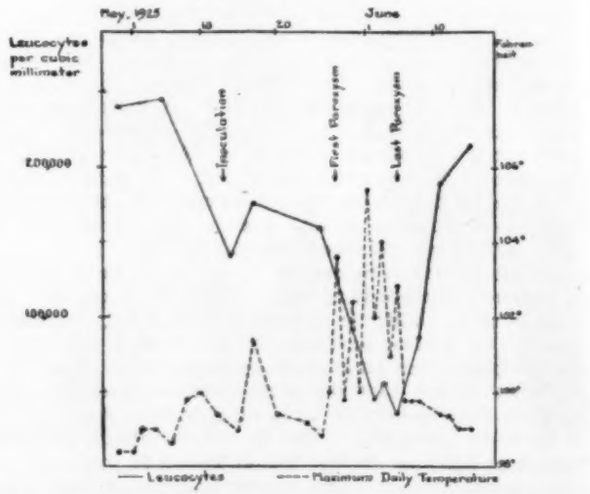

Chart 3.—Course of the leukocyte count in case 1, lymphatic leukemia, in which the patient was inoculated with Plasmodium vivax.

It was somewhat surprising that there was no demonstrable effect on the proportion of the various types of white cells as a result of the fall in the total number. It is probable, however, that this is due to the overwhelming proportion in which the lymphocytes were present.

Patient 2, with typical myelogenous leukemia (table 2 and chart 4), was inoculated with the same organism; thirteen days later a fever developed without paroxysms, reaching 104 F. and continuing for about four days. During this time, the leukocyte count, which had been 750,000 at admission and 560,000 seventeen days after, at the onset of fever, fell rapidly to 255,000. Frank chills did not appear until twenty-one days after inoculation, and they then occurred daily. Coincidentally, the white count fell still further, reaching a minimum of 204,000. Quinine was then given, terminating the infection after seven paroxysms.

As in the previous case, the duration of the improved blood picture was short. Three days after the last chill, the count had risen to 447,000, at which level it remained until roentgen-ray treatment was begun. The effect of the malaria on the erythrocytes was not as pronounced in this case as in the previous one, as there was but little fall in their number, and only moderate diminution in the hemoglobin. It would be of interest to know whether this difference could be connected with the difference in the type of leukemia in the two cases. The differential count reverted slightly toward normal.

With roentgen-ray treatment, the fall in the leukocytes was prompt and much more lasting, the subsequent course being approximately that seen in the usual case of myelogenous leukemia so treated.

It is of interest to note that following the intramuscular injection of blood from patient 1 for the inoculation of patient 2, there was no increase in the number of lymphocytes per cubic millimeter during the twelve months of observation, nor any other evidence of the transference of the lymphocytic leukemia.

CASE 2.—J. M., a white man, aged 27, was admitted in May, 1925, complaining of weakness and pain in the upper abdomen. The onset had been gradual, beginning six months previously, and the disease was accompanied by gradual loss of weight, amounting to 60 pounds (27.2 Kg.) in all.

Examination showed pallor and a slightly enlarged heart with a systolic murmur over the apex and pulmonic area. The spleen could be readily felt extending to the midline and downward below the iliac crest. The liver was enlarged, reaching to the umbilical level.

While the patient was in the hospital there was little change other than the malaise and discomfort due to the malarial fever. During the paroxysms, the spleen definitely increased in size. After the roentgen-ray treatment it receded somewhat.

At the subsequent admissions the chief complaint was of increasing weakness and some difficulty in vision. The patient had worked steadily while at home. In April, 1926, the spleen had diminished markedly in size, reaching to 3 cm. below the umbilicus, and to a point 6.5 cm. to the left of the midline.

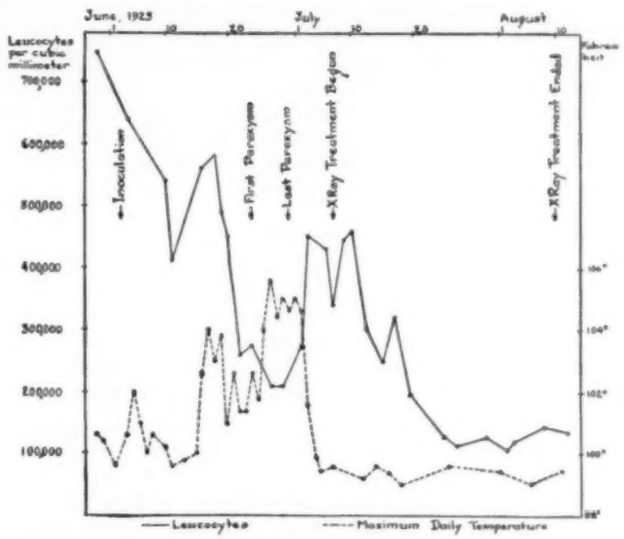

Chart 4.—Course of the leukocyte count in case 2, myelogenous leukemia, in which the patient was inoculated with Plasmodium vivax and subsequently treated with roentgen rays.

TABLE 2.—*Blood Count in Case of Myelogenous Leukemia after Inoculation with Plasmodium Vivax, and During Subsequent Roentgen-Ray Treatment*

Date	Leukocytes per C.mm.	Neutrophils, %	Lymphocytes, %	Large Mononuclears, %	Transitional Cells, %	Eosinophils, %	Basophils, %	Myelocytes, %	Erythrocytes per C.mm.	Hemoglobin, %	
5/30/25	750,000	59	1	...	...	2	3	35	2,700,000	45	
6/ 3/25	640,000	45	0	5	3	3.5	...	37.5	2,300,000	42	Malarial inoculation
6/10/25	540,000	..	...	...	...	...	...	....	.....	..	
6/11/25	410,000	50.7	1	...	2	5	1	40.3	2,490,000	45	
6/18/25	580,000	50.2	3	...	...	4.8	2.6	39.4	2,670,000	42	
6/20/25	427,000	..	...	...	...	...	...	....	2,190,000	..	
6/24/25	271,000	..	...	...	...	...	...	....	2,450,000	42	First paroxysm
6/27/25	204,000	..	...	...	...	...	...	....	.....	..	
6/29/25	205,000	65	2	...	1	1	1	30	2,350,000	40	Quinine begun
6/30/25	.....	..	...	...	...	...	...	....	.....	..	Seventh and last paroxysm
7/ 2/25	272,000	68.5	1	...	...	0.5	4	26	2,530,000	41	
7/ 3/25	447,000	60	2	...	...	2	2	34	2,290,000	35	
7/ 6/25	428,000	..	...	...	...	...	...	....	2,780,000	33	Roentgen-ray treatment begun
7/17/25	319,000	84	4	...	...	1	...	11	2,720,000	40	
8/ 4/25	105,000	51	0.5	...	1	1.5	1.5	35.5	3,100,000	55	
8/14/25	130,000	..	...	...	...	...	...	....	.....	..	Last roentgen-ray treatment
9/ 8/25	55,000	70	8.5	...	...	1.5	2	18	3,800,000	66	Before roentgen-ray treatment
9/20/25	8,700	..	...	...	...	...	...	....	4,210,000	76	After roentgen-ray treatments
4/ 6/26	146,800	76	2	3.5	...	...	1	17.5	3,590,000	68	Before roentgen-ray treatment
5/28/26	25,000	52	23	6	...	1	2	16	3,500,000	68	After roentgen-ray treatments

DETAILS OF CASES

CASE 1.—B. S., a white man, aged 63, was admitted, April 27, 1925, complaining of swelling of the legs, weakness, and lumps in the groin and abdomen. The edema of the ankles had appeared a year previously. The swellings in the groin had been of six months' duration. They had appeared suddenly and did not change in size. For four months he had been very weak. He had lost at least 20 pounds (9 Kg.).

Examination showed pallor, loss of weight, and multiple glandular enlargements. The masses of glands appear fused and hard. They were painless and without evidence of inflammation. There was slight enlargement of the heart, with a systolic murmur heard at the base. The spleen extended down to the iliac crest and nearly to the midline. The liver was enlarged extending to the umbilical level with inspiration.

COMMENT

Since these cases were observed, Lucherini [6] has stated that he has secured favorable results with the

6. Lucherini, T.: Tentative di Cura della Leucemia con Inoculazione de Sangue Infetto da Plasmodium Vivax, Policlinico **32**: 1745 (Dec. 14) 1925.

use of malaria in the treatment of myelogenous leukemia. In his patient, a boy, aged 14, showing 73 per cent of myeloblastic cells, the white count fell from 250,000 to 4,400 per cubic millimeter after twelve paroxysms. As in my cases, the red count and hemoglobin also fell. At the time of the inoculation, they were 1,500,000 per cubic millimeter and 24 per cent, decreasing to 1,200,000 per cubic millimeter and 18 per cent. At the end of the reported observation of the case, six weeks after paroxysms were stopped with quinine, the blood count was: leukocytes, 5,800; erythrocytes, 4,400,000; hemoglobin, 52 per cent; and a differential count was said to be normal. This had been accompanied by a marked improvement in the general condition, and a decrease in the size of spleen and lymph glands.

SUMMARY

Two patients, one with lymphatic and one with myelogenous leukemia, were inoculated with *Plasmodium vivax* and allowed to have a series of febrile paroxysms. In each, there was a prompt fall in the leukocytes to less than half the previous number. Following the termination of the paroxysms with quinine, the white cells rose, in six and three days, respectively, to approximately their previous level.

For the purpose of inoculation, 5 cc. of blood from a patient with lymphatic leukemia was injected into one having myelogenous leukemia. During twelve months of observation, there has been no evidence of a transmission of the lymphatic leukemia.

Tertian malaria, during the stage of paroxysms, markedly decreases the number of leukocytes in both lymphatic and myelogenous leukemia.

Tertian malaria appears to have no curative effect on leukemia.

EXPERIMENTAL INVESTIGATIONS ON CONVULSIONS

THEIR BEARING ON EPILEPSY *

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In a recent publication [1] it was shown that when the motor cortex of dogs or cats was injured by incision or inclusion of a foreign body, spontaneous convulsions appeared from time to time thereafter, and that subsequently over a period of at least many weeks and months convulsions could be induced by wormwood oil (absinthe) with from one third to one seventh of the dose required to produce convulsions in the normal animal. In these experiments (all unilateral) we were careful not to destroy completely, but rather only to injure the motor cortex, hoping thereby to parallel as closely as possible the conditions that seemed to obtain in human epilepsy. Our conclusions from these experiments were that (1) the motor cortex, once injured, thereafter lowers the threshold at which convulsions appear, and (2) injuries to other parts of the brain did not produce results so striking, but suggest a lowering of the convulsive threshold to a lesser degree.

The experiments here summarized continue this line of attack on the etiology of epilepsy but with a somewhat different approach. They are directed toward a more precise determination of the part of the brain involved in the production of clonic convulsions which are the objective and distressing features of epilepsy. From a close study of a large series of patients with epilepsy resulting from tumors of the brain, I have long since felt that clonic convulsions, whether jacksonian or generalized, were almost always if not exclusively due to those tumors which are localized in the cerebral hemispheres. In other words, given a patient with a known brain tumor and not localized, the evidence is strongly in favor of a cerebral tumor; and, conversely, clonic convulsions have seemed to offer the strongest evidence against the presence of a tumor in the cerebellum or brain stem. Exceptions to this generalization are the clonic convulsions of infants with advanced hydrocephalus. In these patients the cerebral hemispheres are usually reduced to a shell by the hydrocephalus—an injury that is just as effective as a primary cerebral injury from a tumor or other cause.

The series of experiments on dogs reported here will, I believe, explain the reasons for the foregoing conclusions and generalizations. It need hardly be added that these views are scarcely different from those which were held by Hughlings Jackson from a study of his epileptic patients and their necropsy data.

In each experiment the dog was anesthetized with ether reinforced by a relatively large preliminary dose of morphine (from 1 to 1½ grains, or 0.065 to 0.09 Gm.). A large bilateral cranial defect was made in order to expose more or less of both cerebral hemispheres, depending on the nature of the experiment, but always the motor cortex on both sides was uncovered. Various parts of the brain were stimulated by the faradic current taken from an induction coil attached to a galvanic battery. Experiments were conducted first on the intact brain; later, various parts of the brain were excised either during or before the advent of convulsions.

Clonic convulsions can be produced at will by direct stimulation of the motor cortex of the dog with light ether anesthesia. There is an optimal zone of intensity of stimulation in which clonic convulsions result. A stimulus too light or too heavy will produce only a single jerk of the affected part. With fairly deep etherization, clonic convulsions can be inhibited entirely. With a lesser depth of etherization, the clonic convulsions will remain localized to an extremity, and with still less ether, the convulsions quickly become generalized. One can therefore control the character and intensity of the convulsions by the state of anesthetization of the animal. Morphine seemingly has little if any such influence on convulsions and is therefore a good substitute for part of the ether during stimulation of the brain. Stimulation of all parts of the surface of the cerebral hemispheres does not produce a motor response, except when more powerful stimuli are used on the cortex or subcortex contiguous to the rolandic area. Responses of this character are doubtless due to the difference in the intensity of the electrical impulses. Stimulation of the cerebellum also produced contractions but never clonic convulsions.

REPORT OF EXPERIMENTS

EXPERIMENT 1.—Clonic convulsions, either localized or general, were induced by stimulation of the motor cortex but not of any other part of the cortex of either cerebral or cerebellar hemispheres.

EXPERIMENT 2.—A tunnel was made through the silent cortex posterior to the rolandic area and the subcortical motor tracts were exposed just above the internal capsule (a depth of about 2 cc.). Stimulation of these fibers (the motor cortex

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* From the Johns Hopkins University and Hospital.

1. Dandy, W. E., and Elman, Robert: Studies in Experimental Epilepsy, Bull. Johns Hopkins Hosp. **36**: 40 (Jan.) 1925.

being intact and uninjured) produced clonic convulsions, local and general, and seemingly just as effectively as stimulation of the motor cortex. Stimulation of the subcortex of the hemisphere aside from the motor tracts did not produce a response.

EXPERIMENT 3 (*a*).—When, during a *localized* clonic convulsion, the motor cortex of the contralateral side is excised by a sweep of the knife, the convulsion instantly and completely ceases.

(*b*) When, during a *generalized* clonic convulsion, the motor cortex of one side is excised by a sweep of the knife, the contralateral side instantly ceases to convulse, but the course of the convulsion on the opposite side is unaffected.

(*c*) When, during a *generalized* convulsion, the motor cortex of both hemispheres is excised by two rapid sweeps of the knife, the convulsion instantly ceases in all parts of the body.

EXPERIMENT 4 (*a*).—When, after excision of the motor cortex on one side, the subcortical motor fibers of this side are stimulated, a clonic convulsion does not ever again result on the contralateral side of the body, but clonic convulsions may appear on the same side (the opposite motor cortex being intact).

(*b*) When, after excision of the motor cortex of both cerebral hemispheres, the subcortical motor tracts of either side are stimulated with stimuli of any intensity, clonic convulsions either localized or general could not again be induced in any part of the body.

EXPERIMENT 5 (*a*).—After excision of the cerebellum, stimulation of the intact motor cortex produces clonic convulsions precisely as before the cerebellum was removed.

(*b*) After excision of the cerebellum and the motor cortex on both sides, stimulation of the subcortical motor fibers (in the cerebral hemispheres) always failed to produce clonic convulsions.

In each of these experiments, the absence of the cerebellum appeared not to influence the development or prevention of clonic convulsions.

EXPERIMENT 6.—Stimulation of the cerebellum, either with the motor cortex intact on both sides, or with the motor cortex removed from one or both sides, failed to produce clonic convulsions.

SUMMARY AND CONCLUSIONS

These experiments show that only stimulation of the motor cortex or its subjacent fibers (with the motor cortex intact) can produce clonic convulsions; that with the one motor cortex excised, clonic convulsions cannot develop contralaterally, and after the excision of the motor cortex of both hemispheres clonic convulsions have not again appeared regardless of the point of stimulation or the intensity of the stimulus. The cerebellum appears not to have any influence on the causation or prevention of clonic convulsions.

It therefore seems safe to conclude that the motor cortex is alone responsible for the remarkable phenomenon of clonic convulsions. Doubtless this specificity of function similarly obtains in the human motor cortex, and is possibly a function of the pyramidal cells. One is not, however, justified from these experiments in saying that the attacks of epilepsy, of which the convulsions are a part, originate in the motor cortex. Clinical evidence, in fact, indicates that they may or may not begin there, depending on the location of the lesion in the cerebral hemisphere; but it is safe to say that without the motor cortex the convulsions could not develop. The point in the hemisphere at which the attack begins would appear to be revealed by a study of the epileptic aura when the affected area has a known function. For example, a gustatory or olfactory aura must be from a lesion of the uncinate lobe, a visional aura from the visual center; a motor aura from the rolandic area, and so on. However, the many large areas of the brain which are as yet silent for known function must necessarily cause auras which cannot as yet be interpreted. A stimulus of sufficient strength in any part of the hemisphere quickly brings the motor cortex into action, a convulsion resulting.

THE FALLING DROP METHOD FOR DETERMINING SPECIFIC GRAVITY

SOME CLINICAL APPLICATIONS *

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Although water is the most abundant and important component of the body, many of its relations to disease have until recent years failed of recognition. In the blood alone, for example, acute changes in concentration are associated with conditions of shock or collapse and their treatment, while chronic hydremia (relative, at least) accompanies the anemias.

TABLE 1.—*Composition, Densities and Uses of Standard Solutions and Xylene-Bromobenzene Mixtures* *

Standard Potassium Sulphate Solutions			Xylene-Bromobenzene Mixtures			
Grams per Liter	Density 20°/20°	Density 30°/30°	Xylene %	Bromobenzene %	Density, 20°/20°	Uses
00.00	1.0000	1.0000	80.0	20.0	0.993	Cerebrospinal fluid, secretions, etc.
18.84	1.0150	1.0148	78.5 76.9	21.5 23.1	1.003 1.013	Plasma, serum, transudates, heavy urine
44.56	1.0350	1.0346	75.3 73.7	24.7 26.3	1.023 1.033	Anemic blood and heavy secretions
70.81	1.0550	1.0545	72.1 70.5	27.9 29.5	1.043 1.053	Normal and anhydremic blood

* All density determinations are calculated T/T; i. e., referred to water at the same temperature, which simplifies the calculations. The expansion coefficients of the potassium sulphate standards are similar to those of blood and serum, but that of xylene-bromobenzene is much greater, so that the values in columns 4 and 5 apply only to 20 C. For work at other temperatures the approximate densities of the same mixtures can be calculated by a ± correction of 0.0008 specific gravity for each ∓ degree Centigrade. Standard potassium sulphate solutions of intermediate strength may be prepared by simple proportionate mixing of any two standard solutions.

Perhaps the favorite method of studying blood concentration heretofore has been by estimation of the hemoglobin content. This cannot be achieved with any degree of accuracy in less time than required for the complete development of the acid hematin color (ten minutes). Nor can any hemoglobin method justly claim a sensitivity of better than 1 or 2 per cent; Leake,[1] in fact, places the average error of the best methods at ± 5 per cent.

The other body fluids do not lend themselves to very rapid and accurate determination of changes in the water content except by the expensive and (relatively insensitive) method of refractometry. We have therefore felt that clinicians would welcome the development of our specific gravity method to the point at which its simplicity makes as great an appeal as its rapidity and accuracy. Since the technic is easily acquired and the special apparatus demanded is very simple, it is believed that physicians in general will find it a valuable method

* From the Department of Physiology and Pharmacology, University of Louisville School of Medicine.

* The development of the method here described was assisted by a grant from the Ella Sachs Plotz Foundation.

1. Leake, C. D.: Wisconsin M. J. 25: 107 (March) 1926.

for determining the water content of the various body fluids.

The revised method has been extensively described in a recent publication.[2] It is our purpose to present here only those details essential to its successful employment, followed by brief suggestions as to fields of clinical application.

PRINCIPLE

A drop of blood (or other body fluid) of definite size is released below the surface of a mixture with which it is nonmiscible. Its rate of fall depends on its density, which can be easily calculated as soon as the rate of fall of a similar drop of standard solution of known density (released under identical conditions) is available for comparison.

DETAILS OF APPARATUS AND MATERIALS

The dropping pipet is a piece of unconstricted capillary tubing calibrated to deliver, between marks, 10 cubic millimeters of clean mercury. The tubing of which the pipet is made must be of fine enough bore to give an interval of at least 4 centimeters between marks. The lower graduation must be at least 3 centimeters from the delivery end, which is ground to a conical point in such a way as to leave a very narrow rim. The pipet requires a rather long suction tube and mouth piece.

The tube to contain the mixture through which the drops fall is a piece of ordinary glass tubing 50 cm. long, and carefully selected so as to have a bore measured at both ends between 7.45 and 7.55 mm. The measurement is conveniently made by inserting a tapered piece of sheet metal. One end is then sealed. At equal distances from the two ends of the tube are marks extending all the way around the tube exactly 30 cm. apart, and about 10 cm. from each end.[3]

The mixture consists of Eastman Kodak Company's xylene T 275 or P 460, and bromobenzene 43.[4] The proportions are indicated in table 1, which offers suitable mixtures for each of the various fluids whose specific gravity one may desire to test. The tube is filled to a level about 1 cm. from the top with the proper xylene-bromobenzene mixture. For blood tests a few drops of saturated magnesium sulphate are dropped in to retain separating serum at the bottom of the tube. Standard potassium sulphate solutions of appropriate strength are listed in table 1. These solutions keep indefinitely in siphon bottles under oil.

The only further apparatus required is a stop-watch, split preferably in tenths of seconds.

PROCEDURE FOR DETERMINATION OF THE SPECIFIC GRAVITY OF BLOOD

The puncture is so made that the blood flows freely and the pipet is filled directly from the drop as it comes through the skin, or the sample may be secured from freshly drawn blood that has not undergone evaporation, coagulation or settling. The blood is drawn into the pipet just beyond the upper mark, care being taken that no air is sucked in. *Should any air become included, the results will be valueless.* The pipet is then held in a horizontal position and its outer surfaces wiped clean on filter paper. It is then tipped enough to return the lower end of the column of blood to the orifice of the pipet. The upper end of the column is adjusted to the upper mark, by gently stroking the tip with the finger. Gentle suction being applied to prevent *absolutely* wetting the outside of the pipet, the end of the pipet is inserted just below the surface of the xylene-bromobenzene in the tube. The suction is released and the top of the column allowed to fall to the lower mark. With the top of the column exactly on the lower mark, the tip of the pipet is gently lifted through the surface film of the xylene-bromobenzene mixture, releasing the drop.

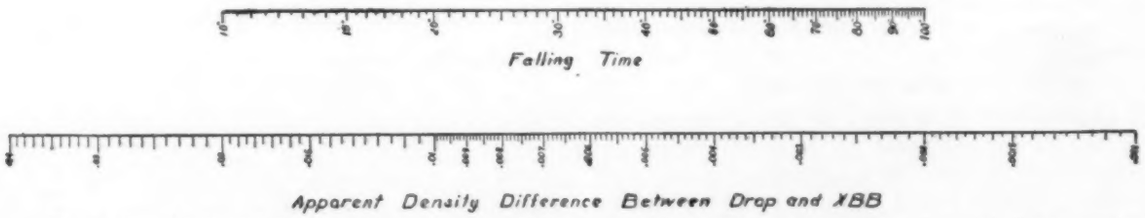

Fig. 1 (from the Journal of Biological Chemistry).—Alinement chart for calculating specific gravity. A straight line connecting the observed falling time and room temperature readings intersects the density scale at the desired point.

If the xylene-bromobenzene mixture is of the proper density, the falling time of the drop between the marks, as measured by a stop-watch, will be between twenty and 100 seconds. If the falling time exceeds 100 seconds, the xylene-bromobenzene mixture is made lighter by the addition of a few drops of xylene, and if the falling time is faster than twenty seconds, the xylene-bromobenzene mixture is made heavier by the addition of a few drops of bromobenzene. After such additions, the contents of the tube must be mixed thoroughly. If extreme accuracy is not necessary, drops falling as rapidly as twelve or fourteen seconds may be allowed.

The falling time of the drop of unknown specific gravity is noted, and immediately after a drop of the proper standard potassium sulphate solution is tested in exactly the same way. These two falling times are read on the alinement chart (fig. 1) by stretching a thread or laying a ruler across room temperature and

2. Barbour, H. G., and Hamilton, W. F.: J. Biol. Chem. **69**: 625 (Aug.) 1926.

3. Pipets and tubes corresponding to our specifications can for the present be obtained at a reasonable cost from Mr. J. H. Warner of this laboratory.

4. Some commercial preparations of these substances give results for which our standards for calculation do not apply.

falling time scales at the proper points. The third scale will be intersected at a point giving the apparent density difference between the xylene-bromobenzene mixture and the falling drop. It is now only necessary to subtract algebraically the apparent density difference between standard and xylene-bromobenzene from the apparent density difference between unknown and xylene-bromobenzene and add the result to the standard potassium sulphate solution density. This gives the true density of the tested body fluid.

To illustrate the use of the alinement chart, let us assume that at a room temperature of 20 C., a standard drop of density 1.0550 required sixty-two seconds to fall while a blood drop tested just afterward required forty-eight seconds:

Blood drop. Falling time: 48 seconds. Apparent density difference	0.0040
Standard drop; 1.0550: falling time: 62 seconds. Apparent density difference	0.0028
True density difference between standard and blood	+.0012
Density of blood	1.0562

Or if the blood happened to be lighter than the standard, the density difference would, of course, be subtracted:

Blood drop. Falling time: 62 seconds. Apparent density difference	0.0028
Standard drop; 1.0550: falling time: 23 seconds. Apparent density difference	0.0113
True density difference between standard and blood	—.0085
Density of blood	1.0465

Determination of the density of body fluids other than whole blood is simpler in that clotting does not occur, and thorough mixing is more easily assured. It is, however, extremely important to avoid evaporation at every stage.

ACCURACY OF THE METHOD

The many careful tests carried out during the last two and one-half years have been described in our detailed publication of the method.[2] In this work every significant source of error has been subjected to quantitative investigation, and the results show that with proper care the determinations are accurate to 0.0001. The sensitivity of this unit, as compared with other commonly employed criteria of the concentration of the various body fluids, is exhibited in table 2, which

TABLE 2.—*Equivalent Values of the Falling Drop Specific Gravity Unit*

Specific gravity	0.0001
Hemoglobin	0.2%
Red blood cells	10,000 per cubic millimeter
Blood solids	0.04% of whole blood
Plasma solids	0.08% of plasma
Plasma proteins	30 mg. per hundred cubic centimeters
Plasma refractive index	0.00005

shows its approximate equivalent in terms of hemoglobin, red blood cells, etc. Since differences corresponding to 0.2 per cent of the whole fluid are distinguishable by no other known methods, it follows that the falling drop method for the determination of specific gravity affords the most accurate procedure for the evaluation of water content.

SOME CLINICAL APPLICATIONS

While derangements of the water balance, as many physiologic experiments have shown, can be profitably studied in the various body fluids, attention will here be confined to indicating briefly certain clinical applications of the falling drop method involving the blood.

The advent of a method by which blood and plasma specific gravity changes can be followed from minute to minute, with single drops, opens a field of application to very acute shifts in the water balance, such as occur, for instance, in anesthetic and operative shock. One can also evaluate procedures designed to combat these conditions, such as the administration of morphine or alkalis. The method further permits following the administration of fluids in various acute toxemias. While fluids are actually being given, the blood condition can serve as a guide to the therapeutic procedure. Anesthetic shock, as the trend of recent investigation shows, is closely bound up with acidosis and anhydremia. It is possible that in this instance the water content of the blood is of equal if not greater importance than blood pressure. The same applies to operative shock, in which the matter has usually been approached through hemoglobin determinations.

The administration of dextrose, acacia or saline solutions, or of transfused blood can be followed in the treatment not only of shock but also of such conditions as severe burns and heat stroke.

The toxemias of pregnancy, particularly preeclamptic conditions, involve changes in the water content of the blood; it is often desirable to follow these changes and their responses to treatment. The same is true of certain pathologic conditions associated with the secretion and voiding of the urine.

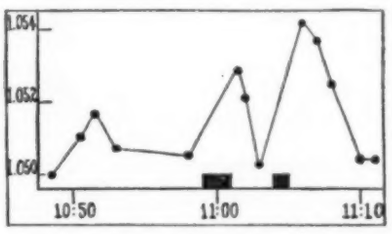

Fig. 2.—Effect of excitement on the specific gravity of the blood (dog): Abscissa, time; ordinate, specific gravity. The first slight increase in specific gravity was due to puncturing an ear vein. During the periods indicated by heavy blocks, the animal was excited to the barking point by play.

In the field of metabolic diseases, applications of blood densimetry include the study of hydremic changes associated with insulin hypoglycemia, and with the administration of parathyroid extract, or of epinephrine. Other instances in connection with drug therapy are the administration of hypertonic and hypotonic solutions as headache remedies. These solutions as well as antipyretic drugs give rise to significant fluid changes in the blood.

Various disturbances in the function of the alimentary tract, e. g., pyloric occlusion and dysenteries, especially those of infancy, are also associated with changes in the concentration of the blood.

Anemias and Edemas.—There is no question that the variations in the red cell count seen in all types of anemia are strongly reflected in specific gravity determinations. Whenever the color index remains normal, they indicate quantitatively the severity of the condition. Anemia, then, may be diagnosed very quickly by the falling drop method, although no data are yet available by which it can differentiate the more obscure types. When leukemia is present, the specific gravity is particularly low, owing to the relatively large number of white blood cells. This gives a specific gravity-solids ratio so low as to appear pathognomonic.[5] Polycythemias, of course, show a high specific gravity.

Among edemas, the specific gravity determination of serum (or plasma) assists in the differential diagnosis. In edemas of circulatory origin, the serum specific gravity is nearly normal, while those associated with renal involvement are often distinguishable by a low serum specific gravity reflecting the low colloidal pressure.[5]

5. Barbour, H. G., and Dawson, M. H.: Unpublished data.

Emotional Anhydremia.—Experience with the falling drop method in this laboratory has emphasized a potent source of error which, although it affects all blood-sampling procedures, is usually neglected even by competent workers. We refer to emotional anhydremia. How large a rôle this plays with "needle-shy" patients has never been quantitatively determined; but we have found that, in dogs, excitement always increases the blood concentration, sometimes by as much as 10 per cent. Figure 2 illustrates the occurrence of emotional anhydremia in a dog three times within half an hour. The first slight increase in specific gravity was due to puncturing an ear vein. During the period indicated by the heavy blocks, the animal was excited to the barking point by play, in the last instance the specific gravity increasing from 1.0502 to 1.0542.

In view of the well established but neglected fact that relatively slight emotional disturbances are associated with anhydremia, one wonders how many really normal blood samples have ever been taken.

CONCLUSION

The falling drop method for specific gravity determinations of the body fluids is the simplest and quickest procedure for following quantitatively their water content. Employed as described above, the method is accurate to 0.0001 specific gravity, being, therefore, much more sensitive than hemoglobin estimations, red cell counts, refractometry or even total solids determinations. The specific gravity of one 10 c.mm. drop of body fluid may be found within less than a minute.

PARALYSIS OF RIGHT DIAPHRAGM IN NEW-BORN DUE TO PHRENIC NERVE INJURY

REPORT OF CASE *

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D. M., a boy, aged 6 weeks, was brought to my office because of rapid respiration, and cyanosis on exertion such as crying. He was the first born of healthy parents; labor was prolonged thirty-two hours and then successfully terminated by forceps. There were four factors prolonging labor: The child was five weeks over time, he weighed 10 pounds and 7 ounces (4.7 Kg.), the birth was by face presentation, and the mother was a primipara. At birth, the cord was around the neck so tight that it seemed necessary to sever it. Accidently the scissors used must have entered the infant's neck on the right side, about an inch above the clavicle, just about the region of the scalene muscle and phrenic nerve. The rather deep incision in the neck soon healed, leaving a transverse scar. The first week of life, he slept almost constantly. Because of insufficient breast milk, both bottle and breast milk were given, but he took neither very well, and lost weight rapidly. The second week, he began to take the bottle fairly well. Respirations were rapid, and so noisy the first few days that they could be heard all over the house. Cyanosis was rather constant; the temperature was quite normal, and there was no crying. The third week, he took his bottle fairly well, there was no vomiting, and the bowels moved normally.

The infant was pale and undernourished. At 6 weeks he weighed 9 pounds and 15 ounces (4.5 Kg.), still 8 ounces below birth weight; he exhibited cyanosis on the exertion of crying. There was a small linear scar in the fold of neck on the right side, and a large forceps scar on the forehead and cheek around the left orbit; the respiration was labored, rapid and with marked costal elevation. During inspiration, the chest was abnormally expanded in the upper half and in the right lower quadrant. The left side was normally drawn in by the inspiratory pull of the diaphragm; but the right side seemed to lack this diaphragmatic pull and ballooned out with each inspiration. The abdomen was rather jerky and it rolled from side to side during respiration. Inspiration seemed to push the abdominal contents from left to right, causing the abdomen to swell out synchronously with the unrestrained right costal wall above. Percussion of the chest gave resonance in the entire left and upper right quadrant, both anterior and posterior. There was dulness in the upper mediastinum to the left 1¼ inches (3.2 cm.). The lower right quadrant of the chest was dull to percussion, and had no diaphragmatic excursion. Heart dulness extended to the left, one-half inch (1.25 cm.) outside the nipple line. Breath sounds were exaggerated in the entire left, and diminished in the entire right chest. Heart tones were pure and of normal rate.

Roentgen-ray examination showed the diaphragm on the right to be extremely high, and the heart displaced to the left as with an entire mediastinal shift; the lung tissue was normal. Fluoroscopic examination revealed no excursion of the diaphragm on the right side, but, instead, the opposite condition. During inspiration, the right side of the diaphragm moved upward, while the left side moved downward normally. This caused a pinwheel appearance of the abdominal viscera. As I had placed a barium feeding in the infant's stomach, I could definitely see the downward thrust of the abdominal viscera by the left side of the diaphragm, and the transverse rotation up into the flapping paralyzed right diaphragmatic dome. The liver and stomach ascended nearly 2 inches (5 cm.) above their normal level with each inspiration. The smooth arch of the diaphragm could be seen unbroken with all the abdominal viscera below it.

At the age of 3½ months the child weighed 12 pounds and 10 ounces (5.7 Kg.). The chest was resonant throughout; breath sounds could be heard equally well on the two sides; the heart area and mediastinal width were quite normal, and the right diaphragm was 1½ inches (3.7 cm.) higher than the left.

At the age of 6 months the child was well nourished and weighed 16 pounds and 3 ounces (7.4 Kg.); he was able to sit alone; there were two teeth; resonance of the lung and the breath sounds were normal. The diaphragm was 1 inch higher on the right than on the left side. The two sides descended equally on inspiration.

At the age of 9 months the child weighed 19 pounds and 13 ounces (8.9 Kg.). He stood alone and walked around chairs; he had six teeth; the heart and chest were normal.

In the differential diagnosis, diaphragmatic hernia was the first thing thought of in this case, because, since birth, there had been respiratory and circulatory embarrassment, and, by examination, the liver dulness was up in the chest. This was ruled out by the roentgen ray, which showed the diaphragm and the abdominal organs in normal relation. Congenital heart disease was considered, because of the cyanosis since birth and because the roentgenogram showed a widened heart area to the left. Further examination of the heart revealed normal tones and rhythm, and normal pulse rate and pressure. The thymus was seriously considered, because of the widening of the upper mediastinal dulness to the left, as shown by percussion, and by roentgen-ray examination. The thymus does cause noisy and embarrassed respirations, and it may even cause cyanosis on the exertion of crying. This infant may have had an enlarged thymus. As there was no way to rule it out, we gave treatments of roentgen-ray exposures, two weeks apart. It is no doubt safer to treat all wide thymic areas than to be too anxious to make fine differentiations. Cerebral pressure, due to the hard forceps delivery, probably caused the stuporous condition and the difficulty of swallowing; but there were no convulsions, eye symptoms or opisthotonos that would indicate cerebral hemorrhage. There was no scar on the right side of the head of a forceps cut. Pulling and twisting of the child's head and neck during delivery might injure the cervical nerve roots. The phrenic nerve comes mainly from the fourth cervical region with small branches from third and fifth. But in this case, there was no paralysis of the other muscles innervated from the same segments. The phrenic nerve passes down the sheath of the

* Read before the Polk County Medical Society, Des Moines, May 25, 1926.

anterior scalenus muscle, passing under the clavicle between the subclavicle artery and vein, thence down the mediastinum to the diaphragm, on each side.

We therefore concluded that the child's condition was a paralysis of the right leaf of the diaphragm due to accidental injury, perhaps section, of the right phrenic nerve in the neck during delivery.

The infant's general condition was brought up to normal by improving the nutrition. No attempt at nerve repair was advised.

The patient made a complete recovery in six months. No similar case has ever been reported in the literature.

COMMENT

There seem to be two classes of cases of paralysis of the diaphragm reported in the literature; those due to phrenic nerve involvment in the mediastinum, and those due to phrenic nerve injury in the neck in conjunction with brachial plexus injury. The former group are represented in the report of Morrison of England, who recently reported nine cases wherein the nerve was found to be secondarily involved with some disease within the chest, and in which a high diaphragm was found by means of the roentgen ray. The right phrenic nerve was involved in two cases, and the left one in seven cases. Three cases were secondary to carcinoma, three secondary to pulmonary tuberculosis, one was associated with aneurysm, and a new growth was found within the chest in the other two cases. It is interesting to note, in an analysis of these cases, that the age of the patient varies from 45 to 59 years. Necropsy in two of the cases revealed the phrenic nerve involved, in both cases with some degeneration of the muscle fibers of the diaphragm, although not to the extent that one would expect, and therefore Morrison suggests the possibility of an axillary innervation of the diaphragm.

Injury during birth has been considered as a possible cause of a high diaphragm. Weigert recently reported a case in which trauma occurred during a delivery. It was found by roentgen-ray examination that the diaphragm was high in the chest on the affected side, and that after two months it occupied a normal position.

Kofferoth made a similar observation relative to the diaphragm, and observed paradoxical breathing in a case in which forceps were used in delivery. This case of diaphragmatic paralysis resulted from injury to the phrenic nerve in association with an injury to the brachial plexus. The paralysis of the diaphragm was discovered shortly after birth, and that of the arm twenty-four hours later. Kofferoth was unable to find a single reference in the literature to this complication detected immediately after delivery.

Weigert, in 1920, reported thirty cases from the literature and one of his own; but only two concerned the new-born, and none were verified by fluoroscopic examination.

Friedman and Chamberlain [1] reported a case of a new-born child in whom a paralysis of the right side of the diaphragm was discovered by roentgen-ray examination at the age of 17 days. The cyanosis, rapid and often irregular breathing, and the dulness in the lower third of the right lung influenced them to diagnose pneumonia. However, normal lung tissue and the very high diaphragm on the right side made the diagnosis of paralysis of the diaphragm evident. Fluoroscopic examination the following day showed paradoxical movement of the two sides of the diaphragm as described by Kofferoth. This case was accompanied by a paralysis of the right arm, which was noted soon after birth. The upper arm showed complete immobility at seven days, but movements in the forearm and hand were only slightly impaired. The arm paralysis had disappeared at the age of 2 weeks. Breathing was rapid and irregular for three months. The diaphragm moved quite normally at 8½ months. Kofferoth's case differed from this one in that the respiratory disturbances appeared earlier, were mild in character, and disappeared in a few days.

Bankers Trust Building.

1. Friedman, Emanuel; and Chamberlain, R. S.: Phrenic Nerve Injury in the New-Born, J. A. M. A. 86: 934 (March 27) 1926.

RELIEF OF DIAPHRAGMATIC TIC, FOLLOWING ENCEPHALITIS, BY SECTION OF PHRENIC NERVES

REPORT OF CASE

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ATLANTA, GA.

The case here reported presents the following features of interest: (1) the occurrence of rapid spasmodic contractions of the diaphragm following an illness that seems to have been encephalitis; (2) the absence of thoracic breathing during the attacks; (3) the production of pain in the scapular region by faradic stimulation of the ipsolateral phrenic nerve; (4) the restoration of the respiration to the thoracic type and to a normal rate following division or blockade of both phrenic nerves, and (5) the apparent absence of unfavorable symptoms following bilateral section of the phrenic nerves.

REPORT OF CASE

History.—Mrs. L. E. W., a white woman, aged 67, referred by Dr. Groesbeck Walsh of the Employees Hospital, Fairfield, Ala., was admitted to the Piedmont Hospital, Nov. 20, 1925. The family history was unimportant. At the age of 47, the patient had had a severe attack of measles causing her to be bedridden for four months. Following an attack of influenza at 55 years of age, she "lost her voice" for several weeks. She had influenza again in 1919 and 1921. During all of these febrile attacks there was an unusual degree of lethargy. The following letter from Dr. Walsh gives a summary of the patient's condition while under his care up to the onset of the present illness:

"Mrs. W. was first admitted to the hospital, March 17, 1924. The diagnosis was arterial hypertension. The principal complaint at this time was backache of two and one-half months' duration, urinary frequency, headache and vertigo. The systolic blood pressure was 295; diastolic, 140; pulse pressure, 155. The weight was 195 pounds (88.5 Kg.); there was a trace of albumin in the urine, and a renal function test showed 35 per cent for the first specimen and 15 per cent for the second. There was a negative Wasserman reaction on the blood; the blood count was 5,000,000 red blood cells and 8,000 leukocytes per cubic millimeter. The fluoroscopic examination gave clear costophrenic angles, high diaphragm right and left, a moderate transverse enlargement of the heart, and a freely pulsating aortic arch. On symptomatic treatment the patient showed improvement. She was readmitted, May 19, complaining of pain suggesting renal colic. A cystoscopic and roentgen-ray examination of the urinary system did not give any abnormalities. She was again admitted, June 14, and September 29, the tentative diagnosis being hypertension and cardiac decompensation. Her principal symptoms at these times were attacks of tachycardia, associated with dyspnea and precordial pain. Symptoms or observations at this time suggesting phrenic involvement were lacking."

While a patient in the Employees Hospital during October, 1924, she became very lethargic. The lethargy lasted several

weeks, and during this period she was so drowsy that she could not remember what went on around her. She had a faint recollection of questions being asked her, but did not remember the questions or her answers to them.

In the latter part of October, 1924, following this period of lethargy, the patient had an attack which was characterized by sharp pain over the precordial and left infraclavicular areas, a sensation of "fluttering" of the heart, and very rapid breathing. In spite of the rapid breathing, there was no sensation of smothering. The attack lasted about one hour. Each morning afterward there were similar attacks of rapid breathing, the pain accompanying the attacks, however, being located principally in the epigastric region. The duration of the attacks gradually became longer, and during the last two months they have lasted from twelve to twenty-four hours each. Occasionally, during the last year, the patient has had intervals of freedom from the attacks lasting from twenty-four to thirty-six hours. During these intervals she is comfortable in all respects. From the onset of the present illness until being transferred to Atlanta, Nov. 20, 1925, the patient was almost continuously in the Employees Hospital. In spite of various therapeutic measures, the condition became more and more aggravated. In August, 1925, Dr. Walsh arrived at the diagnosis of "postencephalitic diaphragmatic tic," and suggested the advisability of performing bilateral section of the phrenic nerves.

Examination.—The most pronounced feature on general examination was very rapid breathing of a pure abdominal type, the rate being 130 a minute. There was no movement of the thorax. When requested to do so the patient could take a long breath, during which the intercostal muscles were brought into play. The breathing resembled the panting of a dog. The mucous membranes were bright red. The patient did not seem to be depressed and did not complain of acute pain. The pulse rate was 72, and the systolic blood pressure was 224; diastolic 116; pulse pressure 108. The heart beats were rhythmic, full and bounding, and no murmurs were heard. The lungs seemed to be normal. A neurologic examination gave normal results with the exception of the rapid movements of the diaphragm. The blood examination showed 5,120,000 red blood cells and 7,700 leukocytes per cubic millimeter; the hemoglobin was 93 per cent; the differential leukocytes were: polymorphonuclears, 54 per cent; small mononuclears, 43 per cent.; large mononuclears, 2 per cent, and transitionals 1 per cent. The urine examination gave a trace of albumin. A fluoroscopic examination gave a definite fluttering of the diaphragm, the contractions varying from 90 to 130 a minute. There was no evidence of thoracic movements. When on request the patient breathed deeply, the thorax became enlarged, without, however, stopping the fine spasmodic contractions of the diaphragm, the two sides of which seemed equally involved in the movements.

Operation.—November 25, under 1 per cent procaine-epinephrine infiltration anesthesia, the right phrenic nerve was exposed. On verification of the nerve with faradic stimulation, in addition to producing a violent contraction of the diaphragm, the patient complained of pain in the right scapular region. As soon as the stimulation was discontinued, the pain ceased. This was repeated several times and invariably the patient complained of the shoulder pain. The phrenic nerve was then severed and the wound closed. In a similar manner the left phrenic nerve was exposed and stimulated. The same phenomena occurred, the pain being referred to the left scapular region. The left phrenic nerve was then frozen with ethyl chloride spray instead of being divided, and the wound was closed.

Course and Result.—Cutting the right phrenic nerve had no influence on the rapid breathing. As soon, however, as the left phrenic nerve was frozen, the respiratory rate fell to 20 a minute, and the character of respiration changed from the abdominal to the thoracic type. While the patient remained in the hospital for two weeks after the operation, the respiration remained 20 a minute except on one occasion when she became excited. At this time the respiratory rate went up to 48 a minute for a period of one-half hour.

Jan. 11, 1926, the patient was again admitted to the hospital with the history of a return of the rapid breathing on Dec. 20, 1925. On admission, the respiration averaged 90 to the minute. Under the fluoroscope no movements of the right side of the diaphragm could be seen. The left side of the diaphragm, however, was contracting rapidly, as before the operation. January 13, the left phrenic nerve was exposed and divided. The patient's respiration immediately became thoracic in type, and the rate descended from 90 to 20 a minute. The respiration remained 20 to the minute for ten days, when for a period of two or three days the rate ascended to 40 a minute. This increase was attributed by Dr. J. E. Paullin, who saw the patient in consultation, as being caused by excitement. The rate came down to 20 a minute a few days later, and has remained so ever since. Dr. Walsh wrote, August 7, that the patient's systolic blood pressure remained 275; diastolic, 150; pulse pressure, 125; she did not have rapid breathing or any evidence of diaphragmatic involvement.

COMMENT

Various respiratory disturbances following epidemic encephalitis have been described by Marie and others. William A. Smith,[1] in a recital of four such cases, gives a bibliography of many of these reports. Marie[2] classified these phenomena into (1) disturbances of respiration proper, as tachypnea and bradypnea; (2) spasmodic cough, and (3) respiratory tics. An illustration of so-called respiratory tic relieved by blockade of the phrenic nerves is given in a report by Gamble, Pepper and Mueller.[3]

During the attacks of rapid breathing caused by the spasmodic movements of the diaphragm, there seems to be a complete cessation of normal thoracic movements. It would seem that the rapid contractions of the diaphragm cause an overventilation of the lungs so as to render unnecessary the normal respiratory movements. In the case under discussion, this was well illustrated. Even after division of one phrenic nerve, there was sufficient ventilation caused by the rapid contractions of the opposite side of the diaphragm to render thoracic movements unnecessary. As soon as both nerves were divided, however, typical thoracic respiration was resumed and the respiratory rate descended to normal.

An observation of especial interest was the production of pain in the scapular region by faradic stimulation of the phrenic nerve. This was repeatedly observed and always occurred on the same side as stimulated. As soon as the current was withdrawn, the pain ceased. According to Gray's Anatomy there are branches of the phrenic nerve which pass to the peritoneum. In addition, from the right nerve there are one or two filaments which join in a small ganglion the phrenic branches of the solar plexus; branches from the ganglion are distributed to the hepatic plexus, the suprarenal capsule and the inferior vena cava. From the left phrenic nerve, filaments join the phrenic plexus of the sympathetic, without any ganglionic enlargement. As the phrenic centers are located principally in the fourth cervical segment of the spinal cord, one might reason that any irritation of the sensory elements, which doubtless exist in the phrenic nerves, would give rise to pain referred to those peripheral areas the sensory neurons of which enter the cord through the corresponding posterior roots. Pain in the upper scapular region, therefore, might be produced by phrenic irri-

1. Smith, W. A.: Respiratory Disturbances Following Epidemic Encephalitis, Arch. Neurol. & Psychiat. **15**: 617-622 (May) 1926.
2. Marie, P.; Binet, L., and Lévy, G.: Bull. et mém. Soc. méd. d. hôp. de Paris **46**: 1075 (July 7) 1922.
3. Gamble, C. J.; Pepper, O. H., and Mueller, G. P.: Postencephalitic Tic of the Diaphragm, J. A. M. A. **85**: 1485 (Nov. 7) 1925.

tation. This sensory phrenic reflex is discussed by Pottenger.[4] The experimental observations made during the operation in the case here reported seem to prove that the shoulder pains in such conditions as subdiaphragmatic inflammation, diaphragmatic pleurisy and gallstone attacks may be caused by impulses ascending the phrenic nerves.

The absence of any distressing symptoms following blockade of both phrenic nerves is an observation of practical clinical interest. Such a procedure has been recommended as a means of putting the lungs more or less at rest in cases of pulmonary tuberculosis, and would seem to have the element of safety. In the reported case, freezing the phrenic nerve caused a block of only a few weeks' duration. It would therefore seem that cases of intractable hiccups might be advantageously treated by freezing the phrenic nerves with ethyl chloride, the block thereby produced having only a temporary duration.

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CLINICAL VARIATIONS OF UREMIA*

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The clinical history which is the basis of this report presents so many anomalies that it may well appear as if contrived to confuse the clinical mind. It proves that therapeutic courage grows out of the clinical emergency quite as much as out of general preparedness, and urges caution in any present day discussion of the kidney dyscrasias. It proves particularly that we should discard the blanket term "uremia," coined many years ago to describe a symptom complex supposedly due to a single cause, and rely definitely on the physiologic chemist to separate and distinguish the large group of entities that fall into the nephritic group of diseases.

With the particular patient described in this article, the results of renal functional tests seemed not to indicate surgery; yet operation was necessary. The metabolites in the blood were enormously high, but the systolic pressure was not unduly elevated, and the diastolic pressure remained within normal limits. The toxic condition was extraordinarily severe, but it resulted in none of the customary cerebral and nerve disturbances that usually constitute a problem in uremia. By all accepted standards of blood chemistry the patient should have died. Nevertheless she walked out of the hospital on the fifty-third day. After operation the urinary output was normal, but the phenolsulphonphthalein return never rose above 1 per cent. The patient lived on in comfort and with a surprising accession of health until she died a year later from an adventitious infection.

During the whole stormy postoperative experience the condition of the patient was desperate enough to justify the unusual measures undertaken for her relief. Salt solution was introduced by hypodermoclysis in amounts of 4,000 cc., instead of the usual 1,000 cc. Twelve thousand cubic centimeters was administered in four days. Blood transfusion was done in conjunction with hypodermoclysis, and the high metabolites did not interfere in any way with typing. The duodenal tube was utilized to introduce additional fluids, and small repeated doses of magnesia magma stimulated peristalsis to return in the paralyzed ileum.

REPORT OF CASE

The patient in question, Mrs. X, appeared demanding a complete examination, April 15, 1924. She had been shopping around among progressive physicians committed to laboratory methods of clinical investigation, because she did not like the diagnoses meted out to her, and she stipulated that our judgment in her case was not to be prejudiced by any information from her regarding prior opinions received. Diagnosis was not readily reached. One tumor with a possible second was palpable in the abdomen, but the liver was engorged and a period of rest in bed was prescribed before any further manipulation was undertaken. At a later date, therefore, I ventured to diagnose cystic kidneys in conjunction with gallbladder disease.

The patient at this time was sent to the hospital for a pyelogram and renal functional test. In spite of the phenolsulphonphthalein output of less than 5 per cent, the surgeon's judgment was that surgical intervention was called for. It was with considerable difficulty that we agreed on the nature of the operation to be done, but it was finally decided to open the abdomen instead of going in at the back. A diseased gallbladder with a large stone was found. Cholecystectomy was done. The stormy postoperative course is covered by the following record.

The patient was examined, August 15, at which time the blood pressure was 150 systolic and 68 diastolic. The blood count was normal.

Table 1 shows the returns in the phenolsulphonphthalein renal functional tests made the day before operation.

TABLE 1.—*Phenolsulphonphthalein Return in Renal Functional Tests*

	Return	Per Cent	Normal Rate
First hour.....	110 cc.	Less than 1	40 to 60%
Second hour.....	100 cc.	Less than 5	20 to 25%
Third hour.....	150 cc.	Less than 5	.....

October 23, a cholecystectomy was done. On the sixth day after operation there were 2,290,000 red blood corpuscles and 20,000 white blood corpuscles. The hemoglobin was 50 per cent. The differential count was: small lymphocytes, 5 per cent; neutrophils, 95 per cent.

On the eighth day following operation, the patient began to vomit practically all the fluids taken and became extremely weak. The sixteenth day there were 3,400,000 red blood corpuscles and 14,825 white blood corpuscles. The hemoglobin was 78 per cent. Transfusion was delayed because of difficulty in securing a suitable donor.

The eighteenth day, a transfusion was done and proctoclysis was begun. Fluid was introduced through the duodenal tube. The patient was on liquid diet, vomiting profusely and intensely toxic.

On the nineteenth day, chemical examination of the blood revealed: urea nitrogen, 138 mg. per hundred cubic centimeters; nonprotein nitrogen, 200 and uric acid, 8. Gastric lavage and feeding through the duodenal tube failed to check emesis. The temperature was 97, the pulse, 86, and the respiration, 16.

The twentieth day, 4,000 cc. of salt solution was introduced by hypodermoclysis. The patient was more toxic. Emesis occurred five times the twentieth day. The pulse was weak and irregular.

The twenty-first day, hypodermoclysis and transfusion were done, and 2,000 cc. of salt solution was introduced. The patient seemed brighter, and the pulse was stronger for short periods. Emesis continued but was less frequent.

By the twenty-seventh day, 12,000 cc. of fluid had been introduced in six days. The urine averaged 43 ounces daily, or 1,300 cc. The pulse was full but irregular. The general condition was much improved. The fluid intake was 53 ounces

4. Pottenger: Symptoms of Visceral Disease, ed. 3, St. Louis, C. V. Mosby Company, 1925.

* From Medical Service "A," St. Luke's Hospital.

and the output 47 ounces. The blood count was 3,330,000 red blood corpuscles; 17,000 white blood corpuscles, and 70 per cent hemoglobin. Chemical examination of the blood revealed: urea nitrogen, 213 mg. per hundred cubic centimeters; nonprotein nitrogen, 300; uric acid, 6.5, and creatinine, 3.6.

The twenty-eighth day, emesis stopped and a soft diet was retained. A digitalis preparation, 1½ grains (1 Gm.) was administered daily.

The thirtieth day the urea nitrogen was 164 mg. per hundred cubic centimeters; the nonprotein nitrogen, 200; the uric acid, 7.5, and creatinine, 3.6.

The fortieth day, a chemical examination of the blood revealed: urea nitrogen, 120 mg. per hundred cubic centimeters; nonprotein nitrogen, 164; uric acid, 5.6; creatinine, 3.4, and sugar, 117.

The forty-second day the blood count was: 3,080,000 red blood corpuscles; white blood corpuscles, 9,000, and 70 per cent hemoglobin. The temperature was 98; pulse, 95, and the respiration, 20.

December 15, the patient was dismissed after fifty-three days in the hospital, at which time the blood examination revealed: urea nitrogen, 70.0 mg. per hundred cubic centimeters; nonprotein nitrogen, 91.3; uric acid, 5.8; creatinine, 2.8, and sugar, 114.

Before the patient left the hospital, another check was made of the three-hour phenolsulphonphthalein test, with the result given in table 2.

TABLE 2.—*Phenolsulphonphthalein Test*

	Return	Per Cent	Normal Rate
First hour	110 cc.	Less than 1	40 to 60%
Second hour	55 cc.	Less than 1	20 to 25%
Third hour	65 cc.	Less than 1	.....

July 24, 1925, the patient made a trip from Springfield, Ill., to Chicago, when a chemical examination of the blood revealed: urea nitrogen, 77 per hundred cubic centimeters; nonprotein nitrogen, 150; uric acid, 4; creatinine, 7.5, and sugar, 111. She was feeling well at this time.

September 2, the patient died with an acute cellulitis.

COMMENT

The blood picture throughout was quite incredible, and on this account all hospital laboratory observations were checked in every detail by two outside chemists. Regarding the clinical procedures, a few generalizations may be permissible in this case:

1. It shows what enormous heights the metabolite can reach without apparent symptoms.

2. It demonstrates that it is possible for a patient to survive the worst type of abusive treatment; namely, a contraindicated major operation.

3. It illustrates the recuperative power of tissue despite the tremendous handicap of invasion by nitrogenous elements, as the incision healed in normal time. We cannot assert that this patient died because the skin was particularly susceptible to infection, since it is common to see people in perfect health succumbing to a severe cellulitis.

4. Hypodermoclysis is often indicated in large quantities. In this case 12,000 cc. of salt solution was introduced in four days, 4,000 at one time, with no harm to the skin and no subsequent sloughing.

5. The duodenal tube is a helpful adjunct in combating a paralyzed ileum with small doses of magnesia magma to promote peristalsis, and to give food in the form of peptonized milk, honey and cider.

6. The blood transfusion can be done with safety in such a case. The high metabolites of the blood do not interfere with typing.

7. The functional test is at times a very misleading guide as to when to operate. It is possible to do a major operation when the functional test is 5 per cent. The patient can recuperate when the functional test is 1 per cent.

8. High metabolic conditions are possible without high blood pressure, particularly diastolic pressure.

CONCLUSIONS

Clinical guidance is never more sincerely desired than in the conduct of borderline and unusual cases. The greatest puzzle is to define the physiologic limits and to mark the bounds where disease begins. Unfortunately, we cannot turn to the physiologic chemist in these emergencies because he is untrained in clinical medicine, and the only clinicians fully trained in physiologic chemistry belong to the more recent graduates in medicine whose clinical judgment has not been fully tested.

The conduct of this case followed the only other course left open: to deny the validity of certain accepted laboratory interdictions and to be guided wholly by the response of the patient to unusually heroic measures for relief.

307 North Michigan Avenue.

Clinical Notes, Suggestions and New Instruments

RECUMBENT POSTURE COUGH WITH PURULENT EXPECTORATION

AN INDICATIVE SYMPTOM IN A CASE OF PERINEPHRITIC ABSCESS WHICH HAD RUPTURED INTO A BRONCHUS

H. T. VON DEESTEN, M.D., HOBOKEN, N. J.

A married woman, aged 45, with an unimportant family and past history, had a sudden onset, in the middle of February, 1926, of severe, aching pains in the arm, elbow, posterior lower chest and hip on the left side. The hip pain radiated down into the knee. With the pain, there was an irregular temperature, sweating, loss of appetite and general malaise.

She was treated for rheumatism with some improvement, but the pain in the chest and hip persisted, together with fever and a gradual loss of flesh and strength.

May 1, ten weeks after the onset of her illness, she suddenly developed a cough with a slight purulent expectoration while in the recumbent position. Concomitantly, there was a diminution of the pain in her chest and hip.

Thereafter, this cough continued and gradually became worse; the purulent expectoration was more profuse whenever she assumed the recumbent posture. It was so harassing that sleep was possible only when the patient was sitting in a chair. The cough and expectoration would always cease when the patient was erect.

Repeated sputum examinations were negative. Roentgenograms did not show pathologic changes in the lung except for a slight elevation of the left diaphragm.

The patient was admitted to the hospital, June 24, in an extremely weakened condition, having lost 40 pounds (18 Kg.); her normal weight was 135 pounds (61 Kg.).

Physical examination of the chest was negative, except for slight tenderness on pressure over the lower left ribs. The left lumbar region was somewhat more prominent than the right. The urine was normal; white blood corpuscles numbered 20,400; polymorphonuclears, 80 per cent.

A diagnosis of a left perinephritic abscess was confirmed by operation. Drainage of the abscess cavity gave immediate relief from the cough and purulent expectoration. For the first time in weeks, the patient was able to sleep when lying on her back.

SUMMARY

1. The clinical history was suggestive of a periodic emptying of pus into a bronchus.

2. The recumbent posture evidently favored drainage.

3. The negative roentgenogram of the lung with slight elevation of the diaphragm pointed toward subphrenic pathologic changes.

4. The tenderness over the left lower ribs and lumbar region, together with a slight lumbar fulness, suggested perirenal involvement.

The recumbent posture cough with purulent expectoration is a diagnostic symptom of a ruptured perinephritic or other subphrenic abscess, when pulmonary disease is not demonstrable.

618 Garden Street.

AUSCULTATORY PERCUSSION IN THE DIAGNOSIS OF PLEURAL EFFUSION

GERALD B. WEBB, M.D., COLORADO SPRINGS, COLO.

Refinements in diagnosis are always useful, and in the recognition of pleurisy with effusion, roentgen-ray facilities are not always at hand. For several years, I have found a method of auscultation with percussion of great service in detecting pleuritic effusion.

The bell of the stethoscope is placed in the lower axilla, when the patient is seated, and the spinous processes of the vertebrae are tapped gently from above downward with the percussion finger. If an effusion is present, a change to a note of higher and shorter pitch is detected at a spinous process which, in the case of the affected side, is above that of the normal side. In many instances, this change of tone accords with the apex of the Grocco triangle, and it does not in general coincide with the upper edge of the fluid content. The method should be practiced on normal persons, with the eyes closed, and it will be determined that the change of note is at the same spinous process on each side, about at the twelfth dorsal.

With thickened pleura, and with advanced tuberculous processes in the base of one lung, the tone related to this side may be changed throughout the range of percussion as compared with that of the opposite side, but there is no sudden change of note as there is in the presence of fluid. Should the effusion completely fill one pleura, no sudden change of note will be observed, but in such a case palpation of the trachea yields an important clue, as indeed it does in all cases of pleural effusion. The same procedure may be followed with the patient leaning a little forward, and gentle percussion made downward over the sternum. With a bed patient who is unable to sit up, the stethoscopic bell can be applied in the median axilla and gentle percussion made from the sternum toward the stethoscope; a distinct change of note will be observed before the bell is reached on the side containing the effusion, whereas on the normal side no such change will be observed.

This method of auscultatory percussion has been carried out in a large number of patients with and without pleuritic effusion, and the results have been carefully checked with aspiration and roentgen-ray examination.

402 Burns Building.

Future of Medical Practice.—If the medical statesmanship of the medical profession could so change the mind of the American people that the average American would look to his doctor for the care of health rather than for the cure of disease, a wholly new order could be established in the world of medicine. A time would eventually come when every family in America would secure its doctor's services by the year instead of by the case or visit. Payments would be made monthly, quarterly, semiannually, or all at once. For such payment, the doctor could render a standardized and comprehensive service including a physical examination of every member of a family at least twice a year, at least a semiannual examination of the house and grounds with advice on matters of ventilation, sanitation, food, clothing, and the like, as well as attendance on all cases of sickness in the family except cases requiring the services of a surgeon or a specialist.—Frank, Glenn: *Wisconsin M. J.* **25**:535 (Nov.) 1926.

Special Article

THE PATHOLOGY OF DIABETES IN CHILDREN *

SHIELDS WARREN, M.D.
BOSTON

Since it is in children that we find the best examples of pure, uncomplicated diabetes mellitus, and since their organs are free from the various degenerative changes so often encountered in adults, it has seemed worth while to record the pathologic conditions found in ten cases of diabetes occurring in children. Their ages ranged from 2 2/10 to 14 7/10 years at the time of the onset of the disease. Patients over 15 years of age at the time of the onset are not included in this paper. The duration in one instance was twenty-nine years; in the others, from seventeen days to five and one-half years.

Eight of these cases were under the care of Dr. Elliott P. Joslin. One case is included through the courtesy of Dr. Henry J. John of Cleveland; another through the kindness of Drs. C. A. Starrow and Oliver H. Stansfield of Worcester, Mass. The significant points of the histories and postmortem observations are summarized in the accompanying table. Certain of the cases have been previously reported, and reference is made to the earlier reports under each.

Pathologic Changes in Diabetes Elicited by History and Postmortem Examination

					Pancreas			
						Islands		
Case	Sex	Age at Death, Years	Duration of Disease, Years	Cause of Death	Size	Number	Pathologic Changes	Acini
1	♂	18.0	3.3	Coma	Small	Normal	0	Normal
2	♀	5.8	1.9	Coma	Small	Very few	0	Normal
3	♂	2.2	17 da.	Coma	Normal	Normal	? Degeneration of β-cells	Normal
4	♀	38.0	29.0	Coma	Small	Few	0	Moderate sclerosis
5	♂	16.0	5.5	Coma	Small	Normal	Slight sclerosis	Moderate sclerosis
6	♂	15.0	1.6	Coma	Small	Normal	Lymphocytic infiltration	Normal
7	♂	3.7	1.1	Coma	Normal	Normal	Pyknotic nuclei	Normal
8	♂	15.3	0.7	Coma	Small	Few	0	Normal
9	♂	6.0	1.4	Trauma	?	Normal	0	Normal
10	♀	6.0	6 wk.	Coma	Swollen	Normal	? Hydropic degeneration	Leukocytic infiltration

REPORT OF CASES

CASE 1.—In a boy, aged 18 years, the onset of the disease occurred three and three-tenths years previously. He was placed on a restricted diet one year after the onset of diabetes, and was given from 10 to 20 Gm. of sodium bicarbonate daily. Two years later, he broke diet and died in coma. Postmortem examination (by Dr. Oscar Richardson) did not detect significant pathologic changes. The pancreas was considered small, but otherwise normal. The report is given in detail by Joslin.[1]

CASE 2.—A girl, aged 5 9/10 years, had the onset of diabetes one and nine-tenths years previously. She was placed on restricted diet, but died in coma. Postmortem examination by Dr. W. T. Councilman showed the tonsils enlarged and

* From the department of pathology, Medical School of Harvard University.

1. Joslin, E. P.: Metabolism in Diabetic Coma, J. M. Research **1**: 306, 1901.

inflamed. There was a patch of acute bronchopneumonia in the right lung. The pancreas was somewhat small, and on microscopic examination extremely few islands were present. Neither the islands nor the remainder of the pancreas showed pathologic change. There was a marked glycogenic infiltration of nuclei of the liver cells and of epithelium of Henle's loops. Other significant conditions were not found.

CASE 3.—A boy, aged 2 2/10 years, entered the hospital with 4.4 per cent sugar in the urine, after a short period of a fat-protein diet. Fasting was begun, with alkalis administered by mouth, but the boy died two days later in coma, seventeen days after the onset of the disease. The pancreas was examined by Dr. John Homans. Tissue is not now available for study. The pathologic report mentions an apparent degeneration of the β-cells of the islands, but, owing to poor fixation, a positive diagnosis could not be made. I should be inclined to consider this pancreas normal, as does Dr. Homans at the present time.

CASE 4.—A woman, aged 38, suffered from diabetes for a remarkably long period. The onset was at the age of 9, twenty-nine years previously. A nine days' fast instituted when she entered the hospital failed to free the urine from sugar. Death occurred in coma. Further details of the treatment are given by Joslin.[2] Owing to the long duration of this case, it seems worth while to present the necropsy protocol in some detail. Necropsy was performed by Dr. J. E. Ash. The body was that of a well developed woman, rather poorly nourished. The organs were not remarkable in gross. The pancreas was slightly smaller than normal, and the spleen was somewhat enlarged and soft. The lungs were red and moist. The kidneys were large and pale. Microscopic examination showed marked vacuolization of the heart muscle fibers, due to the presence of both fat and glycogen. The spleen was congested, with many polymorphonuclear leukocytes in pulp. There was marked hyaline thickening of the arterioles. In the liver there was marked fatty infiltration, and many nuclei distended with glycogen were present. The islands in the pancreas were few. The island cells, as well as those of the acini, showed vacuolization, probably due to fatty infiltration. Foci of moderate interacinous and interlobular fibrosis were evident. The kidneys showed glycogenic infiltration of the epithelium of Henle's loops, and, to a lesser degree, of the convoluted tubules, and edema and lymphocytic infiltration of interstitial tissue. A small adenoma was seen in the cortex of the suprarenals.

CASE 5.—A boy, aged 16 years had the onset of diabetes five and one half years previously. A dietary treatment, which is given in some detail by Joslin,[3] was instituted. After four and a half years, the Newburgh-Marsh high fat diet was used. The last two and a half months of life he received 10 units of insulin daily. Death occurred in coma. Postmortem examination (by Dr. Howard F. Root) showed a small pancreas without diminution in the number of islands, but some islands showed slight fibrosis. There was also moderate interlobular and interacinous sclerosis. The aorta showed atheromatous patches. The reticulo-endothelial cells were loaded with fat. Further details are given by Warren and Root.[4]

CASE 6.—A boy, aged 15 years, had had diabetes one and six-tenths years. Death occurred in coma. The necropsy in this case was unfortunately not complete. The pancreas was noted as small and soft. The islands were normal in number but were infiltrated by lymphocytes. The remainder of the gland was normal. Glycogenic infiltration of the nuclei of the liver cells and of the epithelium of Henle's loops had taken place.

CASE 7.—A boy, aged 3 7/10 years, had had the onset of diabetes one and one-tenth years previously, after a cold. Dietary treatment was successful for nearly a year, when another cold developed, with loss of sugar tolerance. This was followed by bilateral otitis media and death in coma. Necropsy at the New Haven Hospital, according to a protocol by Dr. M. C. Winternitz, showed a normal pancreas weighing 15 Gm. Islands were numerous, and 90 per cent showed shrunken cells with pyknotic nuclei. This does not suggest any significant pathologic change to me, unless the tissue was very fresh and well fixed, in which case hydropic degeneration is probable.

CASE 8.—A boy, aged 15 3/10 years, had the onset of diabetes nine months previously. He received 60 units of insulin on entering the hospital, but a few hours later died in coma. Postmortem examination (by Dr. C. H. Hu) revealed only a small pancreas and somewhat decreased number of islands.

CASE 9.—A boy, aged 6 years, had had diabetes 1.4 years. He was given some insulin and came under the care of Dr. Henry J. John, Cleveland, Ohio, nine months after the onset. He did well under insulin treatment but was killed in an automobile accident. A necropsy performed by the coroner, twelve hours post mortem showed a fractured skull and perforated esophagus. A microscopic examination of the pancreas revealed some postmortem change. Islands were numerous, and both island and acinar cells were poorly defined and vacuolated. Some of the insular epithelium was of the columnar type. This was marked in several large islands present in a rounded lobule at the periphery of the organ. The fine lobulation of the gland as a whole suggested the infantile type of pancreas.

CASE 10.—A girl, aged 6 years, had had diabetes six weeks. She was under the care of Dr. C. A. Starrow of Worcester, Mass. For one week she was ill in bed with vomiting and constipation, after which polyuria and vomiting appeared. Death in coma occurred, in spite of the administration of large amounts of insulin. Postmortem examination showed a swollen, red pancreas. Microscopic examination showed some infiltration with polymorphonuclear leukocytes and lymphocytes at the periphery of the organ. The islands were numerous. The island cells were little more than naked nuclei, strongly suggesting hydropic degeneration. Lymphocytes were apparently present about the islands. An adjacent lymph node was markedly hyperplastic and contained phagocytic endothelial leukocytes.

COMMENT

It is worthy of note that all but one of these patients died in coma, and that one was killed in an automobile accident one and four-tenths years after diabetes developed. Six lived less than two years after the onset of the disease. If there were a recognizable anatomic basis for diabetes, such cases as these should show it best. Yet startling pathologic change was not evident.

The pancreas is noted as small in most cases, but I question the validity of this observation. The size of the pancreas varies considerably even in normal persons, and the pathologist, vainly searching for some definite lesion in diabetes, is apt to stress a small pancreas in a diabetic patient and to gloss over a large one. When we consider that experiments have shown that one-fifth the normal amount of pancreatic substance is sufficient to prevent diabetes, minor variations appear of little value.

In only one instance, case 2, can I regard the reduction in the number of islands as significant. Here there were fewer islands than in any pancreas I have examined. However, apparently even this patient had sufficient insular tissue to carry her through the first three and nine-tenths years of life without noticeable disturbance of glycolytic function. The absence of degenerated islands, or of foci of scar tissue that might represent the site of destroyed islands, leads me to believe that this reduction of insular tissue is congenital rather than the result of disease. Varying degrees of congenital diminution in the number of islands have been reported, ranging from their complete absence to

2. Joslin, E. P.: Treatment of Diabetes Mellitus, ed. 3, Philadelphia, Lea & Febiger, 1916, pp. 521-523.
3. Joslin, E. P.: Diabetes, M. Clin. N. Amer. 5: 1212 (March) 1922.
4. Warren, Shields; and Root, H. F.: The Pathology of Diabetes, with Special Reference to Pancreatic Regeneration, Am. J. Path. 1: 415 (July) 1925; Lipoid-Containing Cells in the Spleen in Diabetes with Lipemia, ibid. 2: 69 (Jan.) 1926.

only a slight decrease. Estimation of their number is always difficult and probably never completely accurate.

Cases 5 and 6 showed anatomic changes in the islands. The islands in case 5 were slightly though definitely sclerosed, and there was moderate increase of the interacinous and interlobular connective tissue. A few of the islands, however, were normal. In case 6, there was lymphocytic infiltration of the islands, while the acinous tissue was normal. As I [4] have previously pointed out, this lymphocytic infiltration is found in young persons, if at all, and fairly early in the course of the disease.

The pancreas in case 10 presented evidence of relatively acute injury. The swollen, red condition of the pancreas, the moderate infiltration with lymphocytes and polymorphonuclear leukocytes, the hyperplastic lymph node adjacent to the pancreas, and the rapid course of the disease following a sudden gastro-intestinal upset all suggest a toxic origin for the disease. Owing to the difficulty of distinguishing naked nuclei from lymphocytes in the tissue at hand, lymphocytic infiltration of the islands cannot be definitely stated to have been present, although I believe it was in this case. I feel quite certain that the change in the island cells is due to hydropic degeneration.

The interacinous and interlobular fibrosis noted in the pancreas in case 4 may or may not be related to the diabetic condition. Such fibrosis may at times be due to chronic passive congestion, and it was known that the myocardium in this case was not capable of proper functioning. In addition, both lungs and spleen gave evidence of chronic passive congestion.

The lesions so typical of diabetes in older persons, the hyaline degeneration of the islands, is not encountered. I have rarely seen this lesion in a person under 45 years of age.

Apparent pathologic changes of the pancreas are not present in most cases of diabetes in children. The importance of this fact cannot be overestimated. Any irreversible change in the insular tissue should be apparent on pathologic examination. The absence of demonstrable injury indicates that the disease in children is not ordinarily due to destruction of island tissue, and the hope that function may be restored under favorable circumstances is not beyond the realms of possibility.

SUMMARY AND CONCLUSIONS

1. The pancreas in diabetic children may be small, but the amount of island tissue is not sufficiently reduced to account for the disturbed metabolism in most cases.

2. Diabetes in children is a severe disease, but one case (case 4) is presented in which the course of the disease was twenty-nine years, from 9 to 38 years of age.

3. All but one of these patients died in coma, and that one was accidentally killed.

4. Lymphocytic infiltration of the islands, found among children, is a lesion not encountered in older diabetic patients, and hyalinization of the islands is not found in the young.

5. There is little pathologic change in either islands or acinous tissue, though commonly reported in the old, and that present does not appear sufficient to account for the marked disturbance in function.

6. Consideration of the anatomic pathology of diabetes in children leads to the hope that, through treatment which allows the element of time to act, irreversible changes in the pancreas may be avoided.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

GYNERGEN.—Ergotamine Tartrate.—$(C_{33}H_{35}O_5N_5)_2.H_2C_4H_4O_6$.—The normal tartrate of the principal alkaloid of ergot, $C_{33}H_{35}O_5N_5$.

Actions and Uses.—Gynergen stimulates the motor nerve endings of the sympathetic division of the autonomic nervous system, thus causing an increase in blood pressure, contraction of the uterus, etc. (the isolated uterus of the guinea-pig is affected in dilution of from 1 in 150,000,000 to 1 in 200,000,000). In large doses it paralyzes the sympathetic nerve endings and causes the darkening of the cock's comb characteristic of the action of ergot. In toxic doses it causes gangrene and convulsions.

Gynergen is proposed for use when the action of ergot to produce uterine contraction is desired; it is contraindicated whenever tonic contraction of the uterus is undesirable. Gynergen is also stated to be indicated in hemorrhage following abortion, after curettage and in postpartum endometritis.

Dosage.—Intramuscularly or hypodermically the average dose is 0.25 mg.; orally, from 1 mg. to 2 mg., one to three times daily.

Manufactured by Sandoz Chemical Works, Basel, Switzerland (H. A. Metz Laboratories, Inc., New York, distributor). U. S. patent 1,394,233 (Oct. 18, 1921; expires 1938); 1,435,187 (Nov. 14, 1922; expires 1939). U. S. trademark 173,047.

Ampules Gynergen, 1.1 cc.: Each cubic centimeter of solution contains 0.0005 Gm. of gynergen and a small excess of tartaric acid.

Tablets Gynergen, 0.001 Gm.

Ergotamine tartrate ordinarily crystallizes with solvents of crystallization. Ergotamine tartrate with ethyl alcohol of crystallization occurs as colorless rhombic crystals that are difficultly soluble in water; these crystals lose their solvent of crystallization (sometimes as much as 8 per cent) in a high vacuum beginning at ordinary temperature and raising the temperature to 105 C.

Ergotamine tartrate is soluble in water (1 in 500) and in ethyl alcohol (1 in 500); on heating it blackens at 177 C., and at 184 C. it decomposes with the evolution of gas. Dissolve about 0.001 Gm. of ergotamine tartrate in a mixture of 5 cc. of glacial acetic acid and 5 cc. of ethyl acetate; to 1 cc. of this solution add slowly and with continual agitation and cooling 1 cc. of sulphuric acid: a blue color with a red tinge develops; add 0.1 cc. of diluted ferric chloride (1 in 1); the red tinge becomes less pronounced and the blue color more pronounced. Add 0.1 cc. of potassium mercuric iodide solution to 2 cc. of a solution of ergotamine tartrate (1 in 50,000): a slight turbidity appears. Add 0.1 cc. of trinitrophenol solution to 2 cc. of a solution containing ergotamine tartrate (1 in 20,000): a turbidity appears. In a subdued light, transfer 0.5 Gm. of ergotamine tartrate to a separatory funnel containing 20 cc. of water and 1 cc. of ammonia water, shake the solution with three portions of chloroform (20 cc., 15 cc. and 15 cc.), combine the chloroform extracts and evaporate spontaneously; transfer a weighed portion to a beaker, add 10 times the weight of acetone at 30 C.; if the solid does not dissolve mark the height of the liquid in the beaker and then add twice the volume of acetone already present and warm; if the solid still does not dissolve, filter, reject the residue and evaporate the filtrate to the volume already marked; add 0.7 part of water and cool to 0 C. for two hours, filter off the crystals and wash with 2 cc. of ether: the crystals are rhombic and are highly refractive. Dry the crystals for twenty-four hours in a high vacuum: the crystals lose their solvent of crystallization, and become a lusterless powder that has the following properties: on heating, the powder blackens at 174 C. and decomposes with the evolution of gas at from 181 to 182 C. It is very soluble in chloroform and glacial acetic acid, but is less soluble in alcohol, benzene and ether. The specific rotation $[\alpha]_D^{20}$ of a 0.6 per cent solution in chloroform is between —125 and —155.

DEXTROSE (See New and Nonofficial Remedies, 1926, p. 227).

The following dosage forms have been accepted:

Ampoules Glucose (Dextrose, U. S. P.) Lilly 10 Gm., 20 cc.: Each ampule contains Dextrose, U. S. P., 10 Gm.; cresol, 0.1 per cent.; distilled water, to make 20 cc.; buffered with sodium phosphate.

Ampoules Glucose (Dextrose, U. S. P.) Lilly 25 Gm., 50 cc.: Each ampule contains Dextrose, U. S. P., 25 Gm.; distilled water to make 50 cc.; accompanied by an ampule containing 2 cc. of a buffer solution which contains in 100 cc. sodium chloride, 0.9 Gm., and sufficient sodium phosphate (approximately 4.5 Gm.) to bring the resulting combination of buffer and glucose solution to a hydrogen ion concentration of *p*H 7. Prepared by Eli Lilly & Co., Indianapolis, Ind.

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SATURDAY, JANUARY 8, 1927

THE EFFECTS OF LOSS OF BILE AND PANCREATIC JUICE

The demonstration of the physiologic importance of the pancreatic gland quite aside from the so-called external secretion, the pancreatic juice, which it elaborates, has raised numerous important questions. The fact that a glandular epithelial structure is provided with an outlet in the form of secretory ducts for its special products by no means excludes the simultaneous possibility of the elaboration of an "internal secretion" that finds its way directly into the circulation. Indeed, the discovery of such possibilities has made it necessary to search for evidences of "internal secretion" or hormone production on the part of many organs. In the case of the salivary glands it is usually stated, on the basis of extirpation experiments on animals, that these racemose epithelial structures are not indispensable to life. Survival of persons after complete gastrectomy affords indication likewise that the gastric glands are not a sine qua non of existence.

The actual significance of the bile and the pancreatic juice has not been so clearly established. Hepatectomy and extirpation of the pancreas are, of course, fatal procedures in the absence of adequate replacement therapy. Animals carrying a biliary fistula appear to tolerate the exclusion of bile over considerable periods without serious impairment of health. Diet is an important factor in securing such results. Nevertheless Whipple,[1] who has devoted much attention to the subject, believes that the question as to the necessity of bile to normal life and function may be answered in the affirmative. There may be doubts in the minds of physiologists and clinicians as to whether obstruction of bile or deviation of bile from the intestine to the exterior (fistula) will invariably give fatal results. But Whipple feels safe in concluding, with certain minor reservations, that secretion of bile into the intestine is necessary for normal health and even for actual continuation of life beyond a few months.

1. Whipple, G. H.: The Origin and Significance of the Constituents of the Bile, Physiol. Rev. **2**: 440 (July) 1922.

Complete exclusion of pancreatic juice also leads to death with evidences of marked asthenia, according to the observations of Elman and McCaughan[2] at the Washington University School of Medicine in St. Louis, in experiments in which the secretion was conducted directly to the exterior of the body. There was persistent hypersecretion, perhaps due to the unopposed secretion of hydrochloric acid into the stomach and its transport to the duodenum, where it is a powerful stimulant of pancreatic flow. This, taken with persistent vomiting, may indicate a condition due to the absence of the normal regurgitation of alkaline pancreatic juice into the stomach. The partial neutralization of the acid gastric contents is thus prevented. This phenomenon, while long known to occur, has never achieved any great recognition and its existence as a normal phenomenon has even been denied. From these observations, the St. Louis investigators conclude further, it would seem that such a relationship may be of vital significance.

THE DEAMINIZING FUNCTION OF THE LIVER

The nitrogen and the carbon of the protein molecule evidently do not keep pace with each other in the disorganization that takes place when the nitrogenous foodstuffs are broken down for utilization in the body. The idea that a splitting of the protein molecule into a nitrogenous part and a non-nitrogenous part takes place is by no means a new one. Many years ago, Voit accounted for the comparatively rapid output of nitrogen and slow output of carbon after a protein meal on the ground that soon after absorption there was a splitting of the protein molecule into a nitrogen rich part which was rapidly dealt with, and a nitrogen poor part which was more slowly utilized.[3] With definite knowledge of the amino-acid make-up of proteins and the identification of protein metabolism in large measure with changes in the component amino-acids, the removal of the nitrogenous groups has become designated as deaminization.

Injection of amino-acids leads rapidly to an augmented output of urea. The formation of urea, the chief end-product of protein breakdown in man, presupposes deaminization. The seat of this chemical change has been debated, though there is little doubt that it occurs in certain tissues rather than in the circulating fluids. The recent elaborate studies of Mann[4] and his collaborators at the Mayo Foundation have shown that the formation of urea ceases immediately after removal of the liver. Under such conditions, amino-acids accumulate in the blood. This

2. Elman, R., and McCaughan, J. C.: The Fatal Effect of the Complete Loss of Pancreatic Juice, Proc. Soc. Exper. Biol. & Med. **24**: 99 (Oct.) 1926.

3. Cathcart, E. P.: The Physiology of Protein Metabolism, London, Longmans, Green & Co., 1921.

4. Bollman, J. L.; Mann, F. C., and Magath, T. B.: Am. J. Physiol. **69**: 371, 1924. The Liver and Urea Formation, editorial, J. A. M. A. **83**: 1336 (Oct. 25) 1924; Urea and the Liver, ibid. **86**: 1629 (May 22) 1926.

of itself, however, is no proof that deaminization ceases immediately or entirely after hepatectomy. Consequently, special investigations [5] have been undertaken to ascertain whether the liver is as essential to deaminization as it is to the subsequent urea formation. The success of such confessedly difficult researches depends on the new technic for complete removal of the liver without immediate collapse and death. In the trials at the Mayo Foundation, in no case could the occurrence of deaminization be demonstrated after the liver had been removed. That no deaminization had occurred was demonstrated by the recovery of amounts of amino-acids in the blood, urine and tissues of these animals in magnitude approximately equal to the anticipated formation of urea had the animal been normal. If amino-acids were injected into these animals, the entire amount of amino-acid nitrogen was recovered unchanged in the blood, urine and tissues many hours after administration. In addition to this complete recovery of unchanged amino-acids, it was demonstrated that no urea is formed in the absence of the liver and the ammonia formed following hepatectomy is not derived from amino-acids in the body in the absence of the liver.

It is well known that the blood sugar, glucose, can be formed from protein, i. e., amino-acids, in the body. The experiments gave no evidence of formation of glucose from amino-acids in the absence of the liver. Following hepatectomy, the sugar content of the blood decreases progressively, so that the animal develops symptoms of hypoglycemia within a few hours after operation and will die of hypoglycemia in from three to ten hours unless glucose, or some sugar that is convertible to glucose, is administered. The administration of amino-acids, particularly glycocoll or alanin, is without effect in altering the course of the hypoglycemia of dehepatization.

There has been a tendency in the past to charge the liver with almost every physiologic function in metabolism for which a better explanation has not been forthcoming. After reciting the foregoing positive evidences of its activities, it may accordingly be worth while to correct some of the unwarranted suppositions. According to Bollman, Mann and Magath's researches, carbohydrate metabolism seems to be complete and normal in the dehepatized animal, as is evidenced by the utilization of glycogen and of glucose without the formation of any recognizable abnormal products. There is no evidence of alterations in the catabolism of fat after dehepatization, so far as accumulation of acetone bodies might indicate such derangement. The formation of creatine and creatinine continues at its normal rate in the absence of the liver, so that it would seem that the organ is not concerned with this phase of nitrogenous metabolism. Bilirubin also continues to be formed in the absence of the liver. The continuance of these bodily functions after hepatectomy indicates both that the liver is not primarily concerned with the metabolism of these substances and that what changes are found are due to the absence of the liver alone.

5. Bollman, J. L.; Mann, F. C., and Magath, T. B.: Studies on the Physiology of the Liver: XV. Effect of Total Removal of the Liver on Deaminization, Am. J. Physiol. 78: 258 (Oct.) 1926.

THE LEAD TREATMENT OF CANCER

Students of the cancer problem have been observing with interest the reports emanating from Liverpool concerning the value of lead preparations in the treatment of inoperable cancer. At a recent meeting of the British Medical Association, a full summary of the results to date was presented.[1] The clinical survey indicates that there is promise of therapeutic benefit in a few selected cases of otherwise hopeless cancer.

The preliminary task before treatment can be begun is the selection of patients who may possibly obtain benefit. Those with operable tumors or growths which have been shown to yield easily to irradiation should be excluded. All those with active renal or cardiac lesions, advanced cachexia, cerebral metastasis or large irremovable tumors must be rejected. Probably those with lung and liver metastasis will ultimately be found not to be benefited, and this group may also have to be removed from the category of those suitable for treatment. The treatment must, of course, be stopped promptly on those who are found to be acutely susceptible to poisoning by small quantities of lead. In a small class of patients, the treatment should be preceded by the removal of as much as possible of the tumor in order to diminish the mass of neoplastic tissue to be influenced by the lead; for the distribution of the metal after injection is roughly quantitative and, if a large tumor is present, so much has to be administered to influence the tumor cells as seriously to injure the liver and kidneys.

The lead suspension which Blair Bell uses contains fairly fine particles, some of which are metallic lead, and some lead hydroxide and lead carbonate. This mixture slowly liberates lead ions (Pb^{++}) in the tissue, which are believed to be the really effective agent. The mixture is more toxic than pure colloidal lead, but it is also more effective in the destruction of tumors. It must be freshly prepared and standardized. It becomes even more highly toxic after two or three days; hence, it must be used promptly. Commercial products are not as yet available, but several laboratories both in this country and in England are experimenting with various preparations, hoping soon to be able to develop a standardized and reliable product.

In the selected patients, the preparation is injected intravenously in quantities of about 100 mg. of lead at intervals of ten days until a total of 300 to 400 mg. has been injected. One month's rest then follows. Then

1. The Nature of Malignant Neoplasia and Treatment of the Disease with Lead, a symposium by members of the staff of the Liverpool Medical Research Organization, Brit. M. J. 2: 919-938 (Nov. 20) 1926.

smaller quantities of about 50 mg. are given at varying intervals until a total of 600 mg. of lead has been administered. In addition to injections of lead intravenously, local treatment of superficial growths by cataphoresis with lead salts has been of benefit. Suitable irradiation can often be successfully combined with the administration of the lead. Following the injections some patients, though not all, suffer considerably from acute toxic effects, such as fever, chills, headache, nausea and persistent vomiting. More rarely, intense jaundice and evidence of renal injury appear. Anemia is often severe after two or three doses of lead, and transfusion is often required to remedy this situation. Hematoporphyrin is regularly present in large quantities in the urine—an index of the blood destruction. Considerable pain is often felt in the tumor shortly after the injection, but this disappears as a rule in twenty-four hours. Superficial nodules of carcinoma may be observed to turn dark red and then brown, and finally, after a few weeks, to shrink up and disappear. Large ulcerated areas often heal over, even in those patients who receive no permanent benefit.

About 20 per cent of all patients treated receive some benefit, that is, "they are either living normal lives or the disease is completely arrested or the disease is believed to be cured and the treatment stopped." The remaining 80 per cent die from the unchecked progress of the malignant growth. Those patients in whom the tumor has ceased to grow, or has disappeared, show all the evidence of perfect health. After the treatment has been completed, rise in blood pressure or other evidence of renal injury does not occur.

A great variety of tumors have been treated, but it is not yet possible to draw definite conclusions concerning the chance of cure for any given type of neoplasm. What is needed to place this method on a sound practical basis is to determine, first, what is the most effective type of lead preparation, and, secondly, by the careful study of the effects of such a preparation on a large series of patients suffering from a definite type of cancer, whether any facts can be obtained that can be put into figures. For example, it is of the utmost importance to treat a few hundred cases of carcinoma of the stomach and to study the results. If none of the patients get well, it is evident that more patients should not be subjected to the unpleasant consequences of the treatment. The same need exists for statistics on a large scale of cancer of the breast and cancer of the cervix, with careful microscopic analysis of the tumor types. Squamous cell carcinomas of the oral region have been found not to be affected favorably.

It would also be valuable to know what can be done with primary carcinoma of the lung, for instance, now apparently so much more frequent than before the introduction of routine roentgenographic examination of the chest. Irradiation seems to benefit these patients little if at all.

Melanomas seem to be resistant, judging from a small number of examples. They will probably remain so despite improvements in technic. Some sarcomas are susceptible, but not all varieties.

A third aspect also requires impartial investigation. The lead apparently acts in a twofold manner, one by thrombosing the vessels in the tumor, the other by direct toxic action on the cells of the growth. If the destruction is incomplete, the tumor may recur with unimpaired activity. May not the synchronous use of irradiation tend to close the vessels and sclerose the connective tissues and thus check the vitality of the neoplastic cells and produce more permanent effects? This phase warrants careful experimental and clinical investigation.

It seems, then, that Blair Bell has shown that when employed under the limitations cited and by those who possess proper laboratory facilities and clinical experience, lead therapy offers to a small number of persons affected with inoperable tumors a chance to escape the consequences of the disease. But before any widespread use can be made of the method some means of removing lead from the body, to control acute or chronic poisoning, should be developed. The whole situation is thus frankly in the experimental stage. To carry out the treatment at all requires hospitalization of the patient for some months, laboratory and clinical facilities not everywhere available, and funds for frequent transfusions. In any case, it seems improbable that the method will ever replace surgery or compete with irradiation in the respective fields in which these methods are especially effective. Yet its very importance lies in the fact that it has already accomplished something in patients in whom one or both of these methods have already failed. Despite what has already been achieved, it is evident that the problem of curing any considerable proportion of all persons having cancer still remains unsolved.

Current Comment

HEALTH OF AMERICAN INDIANS

The recent creditable report of the commissioner of Indian affairs [1] indicates the increasing scope of health activities for the benefit of the Indian population. Emphasis has been placed on health education, particularly in government schools. The bureau has assumed that if children are trained in correct standards of sanitation, their influence will be widespread when they disperse to their homes after leaving school. The result of education in and out of school has resulted in an increased demand for scientific hospital and medical care. These demands have been met to a considerable extent, and the program forecasts further development. In tuberculosis and trachoma, the two worst scourges of the race, progress has been made. Hospital and sanatorium space for the tuberculous has

1. Annual Report of the Commissioner of Indian Affairs to the Secretary of the Interior for Fiscal Year Ended June 30, 1926.

been enlarged. In this field, again, effort seems to have been concentrated on providing for the care, treatment and education of children. Special physicians, moreover, have been detailed for trachoma work. Indians examined for trachoma numbered 14,756, of whom 4,479 were found to have the disease. Of these, 1,938 were operated on, and 2,541 others were treated without operation. The field nursing service has been extended, and graduate nurses have been secured for public health nursing work in homes. Statistics show that the birth rate exceeds the death rate. The achievements and the plans for the future here outlined are the work of men who, as THE JOURNAL has repeatedly pointed out,[2] are sadly underpaid. Salaries paid to physicians in the Indian service are notoriously low; the remuneration is unfair and must inevitably result in a lowering of the quality of service that will be available.

THE CHIROPRACTOR IN DILEMMA

Recently THE JOURNAL[3] commented on chiropractor "Dr. Pell" of Dorothy Canfield's novel "Her Son's Wife." About a year ago,[4] it reviewed Crane Wilbur's farce "Easy Terms," in which the villain chiropractor doubles as comedian when he administers an adjustment to Donald Meek. Now real life presents a situation replete with comedy and with potential tragedy. Uniondale, Ind., has a chiropractor as health officer.[5] It also has a few cases of smallpox which, it is reported, were diagnosed by physicians from surrounding towns. The chiropractor health officer has inquired of the state board of health as to his right to vaccinate. What's the matter with his neurocalometer?

BILIRUBIN AND THE BONE MARROW

Among the widely taught beliefs of physiology that have become subject to critical review, none has proved to be more illusory than the one concerning the origin of the bile pigment bilirubin in the body. For many years the liver was charged with its manufacture. The well substantiated demonstration that the pigment is regularly found in the blood even after complete exclusion of the liver places the possibility of an extrahepatic genesis of bilirubin beyond question. Another controverted assumption is that involving the alleged "circulation of the bile"—the reabsorption of bilirubin from the intestine. This newer knowledge is not merely of academic interest; it affects profoundly the theories as to the causation of jaundice. Hematogenous jaundice appears in an entirely new light. With the liver deposed from its former exclusive rôle, curiosity is naturally directed to the proved sites of bilirubin formation. The possible participation of the spleen and bone marrow as well as the hepatic cells has been clearly demonstrated at the Mayo Foundation.[6] The latest research[7] indicates, for the dog at least, that unquestionably all but a small amount of bilirubin is made outside the abdominal cavity. Since the bone marrow is the only tissue in the remaining portion of the body in which it has been definitely proved that bilirubin originates, and since it is the only tissue outside the abdominal cavity which would appear to have the capacity to form large amounts of bile pigment, it is argued that most of the bilirubin is made in the bone marrow. While bilirubin is formed in both the spleen and the liver, the amount is insignificant as compared with that made in the bone marrow. Of the two former organs, more bilirubin is formed in the spleen than in the liver. As a matter of fact, the Rochester observers conclude, in the normal animal the amount of bilirubin arising in the liver and spleen need not be considered in relation to the total amount of the pigment made in the whole body, since bilirubin can be formed at its normal rate in the absence of these two organs.

2. A Saving Wage for Health Officers, Current Comment, J. A. M. A. **86:** 202 (Jan. 16) 1926.
3. The Chiropractor in Literature, Current Comment, J. A. M. A. **87:** 1651 (Nov. 13) 1926.
4. Chiropractic in the Drama, Current Comment, J. A. M. A. **85:** 902 (Nov. 12) 1925.
5. Chiropractor as Health Officer, editorial, J. Indiana M. A. **19:** 495 (Dec.) 1926.
6. Mann, F. C.; Sheard, C. H., and Bollman, J. L.: Am. J. Physiol. **74:** 49 (Sept.) 1925. Mann, F. C.; Sheard, C. H.; Bollman, J. L., and Baldes, E. J.: Am. J. Physiol. **77:** 219 (June) 1926.
7. Mann, F. C.; Sheard, C. H., and Bollman, J. L.: An Evaluation of the Relative Amounts of Bilirubin Formed in the Liver, Spleen and Bone Marrow, Am. J. Physiol. **78:** 384 (Oct.) 1926.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

CONNECTICUT

Society News.—The new Bridgeport library has equipped a room with all medical reference textbooks and periodicals for the use of physicians. At the annual meeting of the Bridgeport Medical Association, December 7, Dr. Henry B. Lambert was made president-elect and Dr. Edward N. Dewitt, secretary; the president for ensuing year is Dr. Bronislaw L. Smykowski.

License Revoked.—The license of Dr. Emmett Judson Lyman, 25 Park Street, Hartford, to practice medicine in Connecticut, was revoked, Dec. 17, 1926, by the state department of health. The revocation was based on evidence in the superior court record for Hartford County whereby, it is reported, Dr. Lyman pleaded guilty to a crime in the practice of his profession.

Yochelman Charged with Manslaughter.—Dr. Isidor Yochelman, Bridgeport, who, it is reported, was sentenced to fifteen months in jail some years ago for swearing falsely to graduating from a Russian medical school, and whose license to practice was revoked during the investigation of the diploma mill scandal, has been bound over to the superior court on a charge of manslaughter and placed under bonds of $10,000, in connection with the death of a 20 year old girl following an illegal operation.

DISTRICT OF COLUMBIA

Personal.—Dr. John Foote, professor of diseases of children, Georgetown University School of Medicine, has been appointed by the Secretary of State as a delegate to the fifth Pan-American Child Health Congress, which opens in Havana, Cuba, February 13.

Clinical Club Organized.—At a special meeting at the Washington Medical Building, Dec. 27, 1926, the Clinical Club of Washington was organized for the promotion of the professional and social interest of its members. Regular meetings will be held for eight months of the year on the first Tuesday of the month, the first meeting being January 4. There are thirty-three active members, eleven from Georgetown University, eleven from George Washington University and eleven from outside institutions. Dr. Everett M. Ellison was elected president for 1927; Dr. J. Winthrop Peabody, vice president, and Dr. Harry S. Bernton, secretary-treasurer.

Demand for Increased Health Appropriation.—A movement to obtain increased appropriations for the protection of the public health of Washington was recently started at a meeting at the Hotel Burlington, which authorized the selection of a committee of nine to present the demands to the President, the district commissioners and the budget bureau. It is stated that Washington has the largest infant mortality rate of the United States, 87 per thousand of live births, and that at least $115,000 will be required to supplement the health fund provided for next year's budget. The plans are to increase medical inspection in schools, improve the supervision of tuberculous children, and provide prenatal care for mothers. Among the speakers at the meeting were Drs. William G. Morgan and Daniel Percy Hickling.

GEORGIA

Society News.—The Macon County Medical Society has been organized with Dr. Donald B. Frederick, Marshallville, as president, and Dr. Frederick M. Mullino, Montezuma, secretary.——Dr. Daniel C. Elkin, Atlanta, addressed the Fulton County Medical Society, Dec. 2, 1926, on "Postoperative Atelectasis of the Lungs."

Prize for Medical Research.—The *Journal of the Medical Association of Georgia* calls attention to the Crawford W. Long Prize for research work which will be awarded at the next annual meeting for the best original work accomplished by a member of the association during the year. The donor, who desires to remain anonymous, will offer the prize annually as long as he lives. Dr. William R. Dancy, 102 West Jones Street, Savannah, is chairman of the committee in charge.

University News.—The following physicians have been added to the faculty of Emory University School of Medicine: Myron S. Stringer, instructor in pathology; Edgar D. Shanks, bacteriology; William A. Smith, neurology; Roy S. Leadingham, medicine; Robert C. Pendergrass, roentgenology; George A. Williams, assistant in surgery; Ira A. Ferguson, assistant in surgery; Ernest S. Colvin, gynecology and obstetrics; Keith C. Rice, assistant in surgery, and Lonnie W. Grove, associate in surgery.——Theodore H. Jack, Ph.D., dean of the Graduate School of Emory University, has been elected president of the Southern Association of Colleges.

ILLINOIS

Hospital News.—Dr. Robert Z. Sanders was elected president of the staff of the Decatur and Macon County Hospital, Decatur, for the ensuing year, and Dr. Charles C. Chapin, secretary. About fifty were present at the banquet and the election at the hospital, Dec. 14, 1926.——St. Elizabeth's and St. Vincent's hospitals at Belleville have merged.

Personal.—Dr. Jesse W. Carr has resigned as health officer of La Grange.——Dr. Robert L. Whiteside has been appointed health officer of Zeigler to succeed the late Dr. Isaac A. Foster.——Dr. Albert M. Earel, Hoopeston, has been elected president of the C. & E. I. Railway Surgeons' Association. There are said to be ninety-nine surgeons in the service of the railway, sixty of whom were present at the annual meeting in Chicago, December, 1926.

County Secretary Reelected Twenty-One Times.—At the annual meeting of the Madison County Medical Society, Edwardsville, Dec. 3, 1926, Dr. Edward R. Fiegenbaum was elected secretary, it is reported, for the twenty-first consecutive time. Last February, Dr. Fiegenbaum's associates gave a banquet in his honor to celebrate his fiftieth year in the practice of medicine, and to present to him a valuable watch and chain (THE JOURNAL, March 13, 1926, p. 758).

Chicago

Dr. Simmons' Birthday.—Dr. George H. Simmons, editor and general manager emeritus, reached his seventy-fifth birthday, January 2. Dr. Simmons is in excellent health and is devoting considerable time to the work of the special committee on relief of incapacitated physicians, of which he is the chairman.

Christmas Philanthropy.—The Wieboldt Foundation distributed $67,000, Dec. 24, 1926, to more than a hundred philanthropic agencies in Chicago, the largest donations being $10,000 to the United Charities; $4,000 to the Infant Welfare Society; $3,500 to the Visiting Nurses' Association; $3,000 to the Illinois Children's Home and Aid Society, and $1,500 to the Boy Scouts.

Hospital News.—The Garfield Park Hospital is building an eight story addition which will cost $650,000; it will be ready for occupation by May 1.——The new 225 bed addition to the municipal tuberculosis sanatorium will be ready for occupancy about August 1; this will increase the capacity of the hospital to 1,200 patients. The sanatorium occupies a site of 160 acres at Crawford and Bryn Mawr avenues.

Dr. Winner Resigns—Committee to Recommend Successor.—Dr. Peter S. Winner, for eight years superintendent of the medical service at the Chicago Municipal Tuberculosis Sanitarium, has resigned to engage in private practice. The board of trustees has requested a committee, comprising Drs. Frank Billings, James B. Herrick, Ludvig Hektoen and Robert B. Preble, to pass on applicants for the position and to recommend a candidate. Details concerning applications for the position can be had by calling the central office of the sanatorium, Seeley 4110.

Society News.—A dinner in honor of Dr. Joseph C. Bloodgood, Baltimore, was given by members of the Chicago Medical Society at the Hamilton Club, January 5; Dr. Bloodgood addressed the society on "Sarcoma," illustrated with lantern slides; his paper was discussed by Drs. Erwin R. Schmidt of the University of Wisconsin Medical School, James P. Simonds, David J. Davis and Josiah J. Moore. There will be a joint meeting with the Chicago Roentgen Society, January 12; Dr. LeRoy Sante, St. Louis, will speak on "Radiography an Indispensable Aid in the Diagnosis of Chest Conditions," and Dr. Hollis E. Potter will open the discussion. Dr. James M. Martin, Dallas, Texas, will speak on "Practical Application of Roentgen-Ray Therapy in the Treatment of Skin Malignancies," and Dr. William Allen Pusey will open the discussion. The staff of the Michael Reese Hospital will give the program, January 19. There will be a joint meeting with the Chicago Dental Society, January 26.——Dr. Maximilian J. Hubeny addressed the Physicians Fellowship Club, Dec. 17, 1926, on "Socialization and Economics of Medicine."——The Chicago Surgical Society met, January 7, at the Presbyterian Hospital for a clinical session. Among others, Dr. Jerome R. Head spoke on "Use of Lipoidol in Thoracic Surgery," and Drs. Allen B. Kanavel and Sumner L. S. Koch on "Dupuytren's Contracture, with a Report of Eighteen Cases."

IOWA

B. J. and Other Chiropractors Sued.—A suit for more than $500,000 damages and patent rights was filed in Davenport, Dec. 24, 1926, it is reported, against B. J. Palmer and several other chiropractors. The patents involved pertain to the "neurocalometer."

KANSAS

Hospital News.—The Winsell property on East Sixth Street, Cherryvale, has been remodeled into a modern hospital; this community heretofore had no hospital facilities, it is reported.

Society News.—At the fall meeting of the Northeast Kansas Society, Kansas City, Nov. 16, 1926, among others, Dr. Lewis G. Allen spoke on "Visualization of the Gallbladder," and Dr. James A. Fulton on "Acute Pulmonary Tuberculosis and Treatment."

Committee Confers with Board of Regents.—A committee of the Kansas State Medical Society and a delegation of alumni of the University of Kansas met the board of regents at the Bell Memorial Hospital, Kansas City, Dec. 18, 1926. The board decided to recommend improvements to the hospital to cost about $600,000, comprising a four story addition and a nurses' home. The purpose of the conference was also to emphasize the importance of leaving the hospital in Kansas City, because of the better clinical facilities.

MASSACHUSETTS

Society News.—The New England Association for Physical Therapeutics will hold its annual meeting, January 19, at the Reconstruction Clinic, Boston; there will be clinical demonstrations for application of physical therapeutic measures at the New England Sanatorium from 2 to 4 p. m. Physicians interested are cordially invited. The association will hold similar clinics regularly throughout the year, the dates to be announced later.——Dr. Percival Bailey addressed the Massachusetts Psychiatric Society at the Boston Psychopathic Hospital, Dec. 14, 1926, on "Newer Knowledge of the Neuroglia," and Dr. James B. Ayer on "Spinal Fluid Dynamics."——Dr. August Wimmer, professor of psychiatry, University of Copenhagen, addressed a special meeting of the Harvard Medical Society at the Peter Bent Brigham Hospital, on "Epilepsy and Chronic Epidemic Encephalitis."

Sunday Medical Lectures.—The faculty of medicine of Harvard University offers to the public free lectures on

medical subjects to be given at the medical school, Sunday afternoons, from January 9 to March 27. The program includes:

Healthy Children, Dr. Richard M. Smith.
The Public Health Aspects of Venereal Diseases, Dr. Myrtelle M. Canavan (to women only).
Alcoholism, Syphilis and Some Other Conditions as Causes of Mental Disease, Dr. Harry C. Solomon.
The Dangers of Overweight, Lawrence T. Fairhall.
The Internal Secretions, Dr. Joseph C. Aub.
Some Causes of Bladder Trouble, Dr. James Dellinger Barney (to men only).
The Problem Child, Dr. Douglas A. Thom.
How the Nerves, Eyes, Nose and Throat May Be Affected by the Teeth, George H. Wright, D.D.S.
The Meaning of Blood Pressure, Dr. William H. Robey.
Fresh Air, Sunlight and Vitamins, Dr. Edwin T. Wyman.
Something About Dreams, Percy G. Stiles, Ph.D.
Cancer and New Growths, Dr. Shields Warren.

MISSOURI

Society News.—At the recent meeting of the Southwest Missouri Medical Society, Springfield, Dr. William A. Delzell, Springfield, was elected president; Drs. James H. Wade, Ozark, and Wilbur Smith, Springfield, vice presidents; Dr. Leander Cox, Springfield, treasurer; Dr. William R. Beatie, Springfield, recording secretary, and Dr. Joseph W. Love, Springfield, corresponding secretary.

Neuropsychiatric Society Formed.—At a meeting in Kansas City, Dec. 8, 1926, the Missouri-Kansas Neuropsychiatric Society was formed. Dr. Karl A. Menninger, Topeka, was elected president; Dr. Francis A. Carmichael, Osawatomie, vice president, and Dr. Edward T. Gibson, Kansas City, secretary. Among others, Dr. Edward J. Curran demonstrated with lantern slides cerebral fiber tracts which had been exposed by gross dissection. The next meeting of the society will be at the University Club, Kansas City, Mo., in February.

"Patent Medicine" Maker Sentenced to Penitentiary.—H. M. Stunz, Kansas City, proprietor of an establishment which made and sold Korex, Renex and Hiobin, was convicted by a jury, Nov. 20, 1926, of using the mails to defraud. He was sentenced to serve two years in the penitentiary and to pay a fine of $10,000. The advertising matter used in connection with the sale of these quack remedies recommended them as "great discoveries compounded after long years of research by noted chemists." Government witnesses testified to the effect that the remedies were useless. Judge Merrill E. Otis, before passing sentence in Stunz' case, took occasion to criticize newspapers which publish advertisements of such concoctions as Korex, Renex and Hiobin. The case against Stunz was given in detail in the Propaganda Department of THE JOURNAL, Aug. 29, 1925, and in *Hygeia*, July, 1926.

MONTANA

Dr. Spencer Returns to Hamilton.—Surg. R. R. Spencer, U. S. Public Health Service, has been relieved from duty at Washington, D. C., and directed to proceed to Hamilton to assume charge of the field laboratory and the investigations of Rocky Mountain spotted fever which are being carried on there.

Another Physician Boosts Hygeia.—A check for $50 has been received from a physician in the state of Montana together with a list of addresses of his friends to whom he desires subscriptions to *Hygeia* to be sent. The physician considers that *Hygeia* is the best available agent for educating young persons in the value of medical science to mankind, and that it is the best means of informing the public of the economic and physical advantages of health.

NEBRASKA

Personal.—Dr. George M. White has been appointed superintendent of the Hastings State Hospital, Ingleside, to succeed the late Dr. William S. Fast.

Physician Indicted.—The *Nebraska State Medical Journal* notes that Dr. William H. Slattery, city physician of Lincoln, has been indicted by a federal grand jury on a charge of violating the Harrison Narcotic Law.

Society News.—Dr. Frank Lowell Dunn addressed the Omaha-Douglas County Medical Society, Nov. 9, 1926, on "Types of Diabetes Mellitus."——At the annual meeting of the Republican Valley and Tenth Councilor District Medical Society, Hastings State Hospital, recently, Dr. James M. Willis, McCook, was elected president, and Dr. Lother F. Egen, Hastings, secretary.——Among the speakers at the annual meeting of the Fifth Councilor District Medical Society, Oakland, Nov. 10, 1926, Dr. Clyde A. Roeder spoke on "A New Classification of Goiter"; Dr. Artemas I. MacKinnon, Lincoln, "Conservative Pelvic Surgery," and Dr. Charles W. M. Poynter, Omaha, "The Drift of Medical Education."——The Central Minneapolis Medical Society held a banquet, Nov. 3, 1926, at Ord, the guest of honor being Dr. Harry E. Potter, Fairbury, president-elect of the state medical society.——Dr. Oscar F. Lang, Falls City, addressed the Richardson County Medical Society, Nov. 3, 1926, on "A New Aid in Diagnosing Appendicitis."

NEW YORK

Personal.—Dr. Leo J. Palmer has been appointed superintendent of the state reformatory in Bedford to succeed Dr. Amos T. Baker, who has been appointed psychiatrist at Sing Sing prison. Dr. Palmer heretofore was assistant superintendent for the state institution for defective delinquents at Napanoch.——Dr. William J. Van Wie has been appointed assistant health commissioner of Mount Vernon.

Cattaraugus County Society and Health Demonstration.—At the December 16 meeting of the Cattaraugus County Medical Society, the following recommendations of the committee on public health were approved by resolution of the society:

Your committee on public health recommends that the society go on record as favoring the present day public health movement, as favoring the county health unit as the most practical unit in public health administration, as expressing its appreciation to the Milbank Memorial Fund for enabling Cattaraugus County to test the value of the county health unit idea, as expressing its confidence in the members of the county board of health and as favoring the cooperation with the county board of health of the organized medical profession of the county. Your committee further recommends that the society go on record, in view of the fact that the society and its members individually are interested in public health and the prevention of disease, and in view of the fact that the cooperation of the society and its members as individuals has been solicited by the county board of health in the task, as favoring criticism in a constructive way of the actions, activities, programs and plans of the county board of health and the other official and unofficial public health bodies in Cattaragus County.

New York City

Exhibition of Physicians' Art Work.—There will be an exhibition of sculptures, paintings and etchings, the work of members of the medical profession, held at the New York Academy of Medicine, March 1-14. Contributions to this exhibit from physicians are requested. Information can be obtained from the Committee of Physicians Art Exhibit, New York Academy of Medicine, One Hundred and Third Street and Fifth Avenue.

Personal.—Dr. Simon Ehrlich has been appointed chief of the proctologic clinic at Beth Israel Hospital.——A testimonial dinner was given to Dr. Benjamin T. Tilton by his associates at St. Mark's Hospital.——Dr. Abraham J. Rongy has been reelected president of the medical board of Lebanon Hospital for the third time.——Dr. Joshua H. Leiner has been appointed instructor in neurology in the College of Physicians and Surgeons, Columbia University.

Society News.—At the annual meeting of the New York Society for Clinical Psychiatry, Dec. 9, 1926, Dr. Louis Casamajor was elected president, and Dr. Abraham A. Brill, secretary.——At the annual meeting of the Medical Society of the County of Kings, Dr. Thurston S. Welton was elected president; Dr. Charles H. Goodrich, secretary, and Dr. Jaques C. Rushmore, directing librarian.——The New York Physicians Association has elected Dr. Joseph Ziporkes president for 1927 and Dr. James W. Smith, secretary. The association will hereafter hold all its scientific sessions at the New York Academy of Medicine.

Hospital News.—St. Vincent's Hospital recently dedicated a thirteen story addition, containing 175 rooms and an auditorium seating 350 persons.——Contributions to the annual drive for the United Hospital Fund amounted to about $457,000, Dec. 22, 1926. The goal this year is $1,000,000.——The cornerstone of the new five story St. Mark's Hospital, to be erected at Eleventh Street and Second Avenue, was laid, Dec. 15, 1926.——The ladies of the Columbus Hospital Auxiliary turned over to the Columbus Hospital $3,000, the proceeds of a supper dance given at the Hotel Astor, Dec. 10, 1926.——The Unity Hospital, Brooklyn, opened a new maternity wing, Dec. 16, 1926, which was erected and equipped at a cost of $500,000.

State Society Honors Dr. Phillips.—The president of the Medical Society of the State of New York, Dr. George M. Fisher, announces that a dinner will be given in honor of Dr. Wendell C. Phillips, President of the American Medical Association, at the Waldorf-Astoria, January 27, in testimony

of his distinguished services to organized medicine; Dr. Frank Billings of Chicago and the Rev. Dr. Harry Fosdick will speak. Ladies will be present and the tables will be arranged to seat eight or ten persons in the order of the receipt of the applications. Checks ($6 a plate) should be sent to Dr. Daniel S. Dougherty, secretary, 2 East One Hundred and Third Street. Dr. Phillips has for years been a leader in medicine, having been elected president of the New York County Medical Society in 1904; president of the American Laryngological, Rhinological and Otological Society in 1907; president of the Medical Society of the State of New York in 1912; president of the New York Otological Society in 1924; a trustee of the American Medical Association, and the first president of the American Federation of Organizations for the Hard of Hearing.

NORTH CAROLINA

Personal.—Drs. Eugene P. Gray and Sylvester D. Craig have been appointed members of the board of health of Winston-Salem in accordance with a recent ordinance which provides that two members of the board shall be representatives of the Forsyth County Medical Society.

Another County Society Home.—In order to provide a fund for the erection of a building for a permanent home, the Buncombe County Medical Society, at its annual meeting in Asheville, raised the dues to $20. A building committee was appointed to select a site and to prepare plans for the structure. Dr. John W. Huston was elected president of the society; Dr. O. F. Eckel, vice president, and Dr. Matthew S. Broun, secretary-treasurer.

Bride Develops Tuberculosis—Husband Wants Damages from Physician.—A physician in North Carolina has been threatened with a suit for damages by a husband whose bride he examined previous to her marriage and pronounced free from active tuberculosis. As the wife developed tuberculosis in less than six months after marriage, the husband has informed the physician through attorneys, that unless a settlement is made, a suit for damages will be instituted. Much interest is being manifested in the case.

Hospital at Oteen to Change Status.—It is reported that on completion of additions now being constructed at the U. S. Veterans' Bureau Hospital at Oteen, the institution will become a general hospital for ex-service men of the southeastern part of the United States. The original temporary structures, constructed during the World War, have been largely replaced with high-grade modern buildings. The additions under construction will make it the largest government hospital south of Washington, and one of the best equipped in the country.

OHIO

Wellington Epidemic Caused by Carrier.—The state health officer, Dr. John E. Monger, has announced, it is reported, following an investigation of several months, that the Wellington epidemic of typhoid last fall was caused by a carrier who was employed at a dairy, and that the same carrier had been responsible for a milk-borne epidemic in 1925 at Sandusky; at Wellington 149 cases of typhoid developed and fourteen persons died.

Hospital News.—Dr. James Fraunfelter has presented a medical library and physicians' room to the staff of the Aultman Memorial Hospital, Canton.——The new $1,000,000 Bethesda Hospital, Cincinnati, which adjoins the old structure and has a capacity of 163 beds, was formally dedicated recently.——James W. Packard, former president of the Packard Motor Car Company, has made a gift of $200,000 to the Cleveland Clinic Foundation.

PENNSYLVANIA

Tuberculosis Conference.—The Pennsylvania Tuberculosis Conference and annual meeting of the state tuberculosis society will be held at Scranton, January 25-26, in the chamber of commerce building. Drs. Livingston Farrand, president of Cornell University, Ithaca, N. Y.; Allen K. Krause, Baltimore; R. H. McCutcheon, Mont Alto Sanatorium, and Walter L. Rathbun, Chautauqua County Sanatorium, will be among the speakers.

Hospital News.—Dr. Norman A. Timmins has purchased a three story building in Bedford, which will be remodeled into a twenty-five room hospital.——The Locust Mountain State Hospital at Shenandoah, in a little less than the six months since it opened, has admitted 480 patients and treated a much larger number at its dispensary.——Dr. Harry B. Walter, Harrisburg, has been elected a member of the dispensary staff of the Polyclinic Hospital.

Community Clinics.—The series of thirteen community clinics, which began Dec. 6, 1926, at the St. Francis Hospital, Pittsburgh, is an outgrowth of the free dispensary of the general hospital. The attendance is limited to 100 because of lack of space. The city department of health has approved the undertaking as a means of increasing the public service of the hospital. The next clinic will be January 11, and "Appliances and Methods for the Sick Room," January 13, "Babies and Their Care," January 18, "Mental Hygiene" and, January 20, "Care of Patients with Communicable Diseases" will be the subjects discussed.

Society News.—Drs. Alfred S. McElroy and Robert M. Entwisle read a paper on "Intussusception" before the Pittsburgh Pediatric Society, Dec. 17, 1926.——Dr. Paul B. Steele addressed the Allegheny County Medical Society, Pittsburgh, Dec. 21, 1926, on "Differential Diagnosis of Bone Diseases and Tumors."——Drs. James O. Wallace and Howard H. Permar addressed the Pittsburgh Academy of Medicine, Dec. 14, 1926, on "Internal Derangements of the Knee Joint with Pathology" (lantern slides).——The Dauphin County Medical Society exhibited moving pictures of its members at the December, 1926, meeting; they will be shown again after five years.

Philadelphia

Society News.—Dr. Temple S. Fay addressed the Philadelphia Neurological Society, Dec. 17, 1926, on "The Localizing Value of Vasomotor and Pilomotor Reflexes in Tumors of the Spinal Cord."——Dr. Francis H. Adler, among others, addressed the Philadelphia County Medical Society, Dec. 22, 1926, on "Ocular Disorders in Deficiency Diseases" (lantern slides).

Dr. Frazier Returns from China.—Dr. Charles H. Frazier, Philadelphia, has returned to the department of surgery at the University of Pennsylvania after a trip to China as delegate of the American Medical Association to the China Medical Association meeting in Peking, Sept. 1-8, 1926. Dr. Frazier addressed the students at Peking Union Medical College and of the Shanghai Medical College and other places, and visited some of the mission hospitals. The military activities and the political situation, however, prevented his calling at a number of other important medical centers.

Personal.—Dr. Robert H. Ivy was elected vice president of the American Association of Oral and Plastic Surgeons at the annual meeting in Ann Arbor, Mich., Nov. 11, 1926.——George D. Rosengarten has been elected president of the American Chemical Society.——A dinner was given in honor of Lightner Witmer, Ph.D., director of the psychologic laboratory and clinic of the University of Pennsylvania, to celebrate the thirtieth anniversary of his founding of the first psychologic clinic.——Dr. Louis Edeiken has assumed the office of grand superior of Phi Lambda Kappa, a national medical fraternity.

University Expansion Dinner and Conference.—The board of trustees of the University of Pennsylvania will hold a dinner at the Bellevue-Stratford Hotel, January 10, for about 1,200 alumni and friends to discuss plans to develop the medical schools into a still greater medical center. Mr. and Mrs. Henry Phipps, New York, have offered $500,000 to the university to enlarge the Henry Phipps Institute, provided the university raises an equal sum; other plans are to establish a foundation with an endowment of $500,000 as an adjunct to the school of surgery, to construct the Martin Maloney clinic at a cost of $750,000, for which Mr. Maloney has offered $250,000, and to establish the Joseph Leidy chair of anatomy with an endowment of $200,000. The Rockefeller Foundation and the General Education Board each offered $250,000 toward the institute of anatomy and alumni and friends have already subscribed equal amounts. The guests of honor at the dinner will be Henry S. Pritchett, president of the Carnegie Foundation, and Dr. Hubert Work, secretary of the interior.

SOUTH DAKOTA

District Meetings.—Dr. Theodore F. Riggs, Pierre, president of the state medical society, from Nov. 8 to Dec. 15, 1926, visited the Mitchell, Sioux Falls, Aberdeen, Huron and Yankton district societies. Dr. Riggs, at each meeting, gave a summary of the legislative problems to be presented to the next legislature. He was accompanied by Dr. John F. D. Cook, of the state board of health, who spoke on the model vital statistics law.——Dr. Leroy L. Parke, Canton, has been elected president of the Sioux Falls District Medical Society, and Dr. Louis J. Pankow, Sioux Falls, secretary, reelected.

Dr. George H. Richards has been elected president of the Watertown District Medical Society, and Dr. Anders E. Johnson, Watertown, secretary.

TENNESSEE

Flood at Nashville.—The Cumberland River had risen to a height of 55.7 feet, Dec. 30, 1926, and was still rising slowly. Flood waters had inundated about 200 blocks in Nashville, made about 4,000 persons temporarily homeless, and caused a property damage estimated at about $2,000,000.

Personal.—Maurice B. Visscher, M.S., assistant professor of physiology at the University of Minnesota, has been appointed associate professor of physiology at the University of Tennessee College of Medicine.——Dr. Lemuel C. Cox has resigned as health officer of Kingsport, and Dr. W. C. Lyons has been appointed to that position.

American Laryngological, Rhinological and Otological Society.—The southern section of this society will meet at Memphis, January 31, with headquarters at the Hotel Peabody. The papers to be presented include "Bony Tumors of the Frontal Sinus," Dr. William Robin Harris, Memphis; "Physiology of the Larynx," Dr. William V. Mullin, Cleveland, Ohio; "Brain Abscess of Otitic Origin," Dr. Frederick E. Hasty, Nashville; "Vertigo," Dr. Lewis Fisher, Philadelphia; "Treatment of Chronic Suppurative Otitis Media," Dr. George L. Tobey, Jr., Boston, and "Clinical Observation of Sinus Disease," Dr. Joseph A. Stucky, Lexington, Ky. The afternoon session will be a clinical meeting at the Memphis Eye, Ear, Nose and Throat Hospital. Following a dinner in the evening, papers will be presented by Dr. Walter R. Parker, Detroit, Mich., and Dr. Raphael E. Semmes, Jr., Memphis.

TEXAS

Hospital News.—The question of a $125,000 bond issue to erect a city hospital in Palestine was defeated at the recent general election by a vote of nearly two to one; among the reasons given by the opponents was that municipal taxes were already too high.——Dr. Edward G. Lyon has assumed the superintendency of the Emergency Hospital, Dallas.

Water Works Meeting.—The annual meeting of Water Works and Filter Plant Operators will be held at Dallas, January 24-29, under the auspices of the state board of health and the Southwest Water Works Association. The speakers will include Sir Alexander Houston, London, who, for twenty-five years, was in charge of the London water supply; Carl Imhoff, New York, inventor of the Imhoff tank; J. W. Ellms, in charge of Cleveland's water supply; August Graf, St. Louis, in charge of the filter plant in that city, and Morris M. Cohen.

Society News.—Among others, Dr. James E. Robinson, Temple, read a paper before the Falls County Medical Society, Marlin, recently, on "Blood Dyscrasia."——Dr. Charles C. Cade, San Antonio, addressed the Karnes-Wilson County Medical Society, recently, on "Psychosis as a Factor in Surgical Failure."——Dr. Jack E. Daly recently addressed the Tarrant County Medical Society, Fort Worth, on "Mesenteric Thrombosis"; in the general discussion of the subject, three cases were presented before the society.——Dr. Joseph Gilbert, Austin, president-elect of the Texas State Medical Association, addressed the Williamson County Medical Society recently, Georgetown, on "Public Health Legislation."——Dr. Kenneth H. Aynesworth, Waco, has been elected president of the Texas Surgical Society for the ensuing year, and Dr. Harold L. D. Kirkham, Houston, secretary. The next meeting will be in Dallas in April.——The Tri-State Medical Society (Arkansas, Louisiana and Texas) will meet in Texarkana, January 19-20. The secretary is Dr. Frank H. Walke, Shreveport, La.

VERMONT

License Restored.—The state board of medical registration reports that the license of Dr. Samuel J. Allen, White River Junction, which was revoked in 1913 for criminal practices, has been reinstated as of Oct. 28, 1926, and Dr. Allen now has the rights and privileges of a medical practitioner.

Leonard K. Hirshberg's License Revoked.—The state board of medical registration writes that the Vermont license of Dr. Leonard K. Hirshberg, Baltimore, was recently revoked and annulled by virtue of cancelation and revocation of his Maryland license, through which state he was licensed in Vermont by reciprocity in 1908. Hirshberg's activities were discussed in THE JOURNAL, Aug. 1, 1925, p. 360, and Feb. 13, 1926, p. 502.

WISCONSIN

Chiropractor Breaks a Bone.—In a suit for damages against Robert Larsen, a chiropractor of Appleton, the Outagamie Circuit Court awarded William Block $4,500 damages, it is reported. Block is said to have charged that his leg was fractured, June 15, 1926, while undergoing treatment by the chiropractor.

Hospital Building Burned.—The sanatorium building of the Summit Hospital, Oconomowoc, was destroyed by fire, Dec. 24, 1926, it is reported, with a loss of about $175,000. The patients were all safely removed, and the institution will continue to operate the hospital and lodge, pending reconstruction work.

CANADA

Train Porters in Narcotic Raid.—Among five persons arrested in Montreal, Dec. 30, 1926, in a raid on alleged drug smugglers, three were employed on the Chicago-Montreal express train of the Canadian Pacific Railway. Narcotics valued at more than $15,000 were seized in two houses in Montreal, and two porters were held under $10,000 bonds. The raid, the result of a three months' investigation, was conducted under the personal direction of the chief of the narcotic division of the Canadian government. The alleged smugglers made Montreal a base from which drugs were smuggled into Detroit, Chicago and other American cities.

GENERAL

Change of Address.—The Medical Protective Company, formerly of Fort Wayne, Ind., has moved its headquarters to 35 East Wacker Drive, Chicago.

Heart Disease the Leading Cause of Death.—The principal cause of death in the United States during 1925, the department of commerce announces, was heart disease, the total number of deaths from that cause having been 191,226 as compared to 176,871 for the preceding year, an increase of 7.4 per cent. The death rate from tuberculosis continued to decline, the number of deaths from that cause in 1925 having been 89,268, a rate of 86.6 per hundred thousand of population, as compared to 90.4 in 1924.

Puerperal Death Rates Increase in Sixteen States.—In the thirty-two states for which figures are available, the death rate from puerperal septicemia was 2.4 per thousand of live births, and from other puerperal causes, 4.0 for both years, 1924 and 1925. Sixteen of these states show higher rates from all puerperal causes in 1925 than in 1924. In the "birth registration area of 1921," comprising twenty-six states and the District of Columbia, the rate from all puerperal causes decreased from 6.7 in 1921 to 6.4 in 1925 per thousand of live births, and the rate from puerperal septicemia from 2.7 to 2.4. Connecticut had the lowest death rate in 1925 from all puerperal causes (4.9), and Florida the highest (12.1 per thousand of live births).

Official Announcement of Automobile Fatalities.—The U. S. Department of Commerce announces that during 1925 there were 17,571 accidental deaths charged to automobiles and other motor vehicles, excluding motorcycles, in the registration area of the United States. These do not include accidents due to collisions of automobiles with street cars and railroad trains, which caused 498 and 1,266 deaths, respectively. When added to the above number, this makes a grand total of 19,335 deaths from accidents in which automobiles were involved. The death rate from this cause was 18.8 per hundred thousand of population. The registration area included only 89.4 per cent of the total population of the United States in 1925; assuming that the same rate would apply to the entire population of the country, the total number of fatalities would be 21,627. In thirty-four states for which data is available for the five year period, 1921 to 1925, the death rates from automobile accidents increased from 11.4 to 17.4 per hundred thousand, and in sixty-six cities for which similar data is available, the rate increased from 15.8 to 21.2. Some deaths are charged to cities, although the accidents occurred outside the cities' limits, the victims having been rushed to hospitals within the corporate limits.

Model Cosmetic Bill.—The Association of Dairy, Food and Drug Officials of the United States adopted a model cosmetic bill at their annual convention in Washington last October, which had been prepared by a committee authorized at the annual meeting in Denver. The bill is now being presented to the various state officials with the recommendation that it be introduced into the legislature. The object of the legisla-

tion is to regulate the distribution, sale and commercial use of cosmetics to prevent their adulteration or misbranding. Section 3 of the bill states that:

A cosmetic is adulterated within the meaning of this act if it contains any salt, compound or derivative of lead, arsenic, mercury, or of hydrofluoric acid, any free sodium or potassium hydroxide in excess of one-half of one per cent, any amine derived from coal-tar hydrocarbon, any methyl alcohol, or any other ingredient that renders its use injurious.

Section 4 of the bill states that:

A cosmetic is misbranded within the meaning of this act (*a*) if its package or label shall bear, or any advertising matter relating to the article shall contain, any statement, design or device which is false, misleading or deceptive in any particular. (*b*) If its inner and outer package labels shall fail to bear a plain and conspicuous declaration of the presence and amounts, in accordance with the common method of expression, of such of the following as may be ingredients, accompanied, except in the case of dentifrices and soaps, by the phrase, for external use only — salts, compounds and derivatives of silver, copper, zinc, barium, bismuth, antimony, cadmium, nickel and cobalt; any oxalic acid, belladonna or mydriatic alkaloids, and any salts or derivatives of such; any pyrogallic acid, calcium sulphide, formaldehyde, aluminum chloride, aluminum oxychloride, and any free mineral acid in excess of 1 per cent.

FOREIGN

Influenza Epidemic in Switzerland.—The Associated Press, Dec. 29, 1926, reported an outbreak of influenza in Geneva, Switzerland, as becoming so extensive as seriously to affect such public services as the railroads and postoffices. About 100 members of the secretariat of the League of Nations were affected, but deaths had not yet been reported.

Health Center for Jerusalem.—At the winter meeting of Hadassah, it was announced that Nathan Straus, New York, had donated $250,000 for the erection of a modern health center in Jerusalem. Specifications by Mr. Straus required that there shall be a pasteurization plant for milk, a subject in which he has been much interested for years. There will be clinics for the treatment of disease, but the center will be primarily for the education of people in healthful living.

Cancer Prize Awarded.—The Sofie A. Nordoff-Jung cancer prize for 1926 for the best contribution in cancer research has been awarded to Dr. Otto Warburg, director, department of biology, Kaiser Wilhelm Institute of Berlin. The members of the award commission were Professors Borst, Doederlein, von Romberg and Sauerbruch, all of the University of Munich, and the citation reads as follows:

The novel methods of investigation developed by Professor Warburg have opened reliable channels for tests on the metabolism of surviving tissues under varying conditions. With a singular predetermination he has made available an abundance of valuable material through comparative experimentations on the processes of disintegration and oxidation of normal tissues and neoplasms. His biochemical attack on the cancer problem presages the most promising results.

Prizes Offered by British Medical Association.—The supplement to the *British Medical Journal*, Dec. 4, 1926, deals with the activities of the British Medical Association and the next annual meeting at Edinburgh, in July, under the presidency of Sir Robert W. Philip, honorary physician to the king in Scotland and professor of tuberculosis, University of Edinburgh. The association has not met in the Scottish capital since 1898. A new prize, known as the Katherine Bishop Harman Prize, has been inaugurated for research on disorders incident to maternity. The association recognizes original work in ophthalmology by the Middlemore Prize, and the study of epidemic disease by the Stewart Prize. The Sir Charles Hastings Prize of fifty guineas was established in memory of the founder of the British Medical Association to stimulate general practitioners in systematic observation and research, and the first award was made in 1926. The association in the last twelve months has gained nearly 2,000 members, the total, Nov. 25, 1926, being 32,330, an increase of more than 12,000 since the World War. There is a letter addressed to practitioners who are not already members of the association stating the objects and privileges of membership, telling something about the future activities of the association, and extending a cordial invitation to join. There is a reproduction of the new headquarters in Tavistock Square, London, with interior views of the great hall prepared for the autumn dinner and the council chamber, and some old cuts of the medical school in Edinburgh where the next annual meeting will be.

Deaths in Other Countries

G. Oosterbaan, chief inspector of children's hygiene at Haye, Holland. —— **William Oettinger,** author of Alcoholic Paralyses and other works, Paris, France, aged 70. —— **Hugh Campbell Ross,** London, England, director of the Lister Institute of Preventive Medicine, and for many years engaged in cancer research; formerly medical officer of health at Cairo; died at sea, Dec. 14, 1926, aged 51. He was buried at sea.

Government Services

Report of Public Health Service

The annual report of Surg. Gen. Hugh S. Cumming, U. S. Public Health Service, shows, in general, that favorable health conditions prevailed throughout the United States, although 84 per cent of the rural population is unprovided with adequate official local health service. During the last year work was carried out to establish full-time county health service in eighty-nine counties in twenty states. An unqualified success apparently attended the inspection at European ports of immigrants intending to come to the United States, which was begun during the fiscal year. This was a severe drain on the personnel of the Public Health Service; there are, at present, twenty-eight regular medical officers on duty in European countries, and at the same time immigration inspection is still carried on at American ports, as all foreign seamen must be examined as prospective immigrants; last year there were 872,842 foreign seamen so examined.

Preliminary reports indicate that the death rate for the calendar year 1925 was 11.7 per thousand of population in thirty states. Thirty-four states reported 113,762 deaths from influenza as compared with 105,109 during 1924. The death rate from tuberculosis in thirty-six states in 1925 was 81.8 per hundred thousand and 84.8 in the same states in 1924. Thirty-six states reported 36,000 cases of typhoid during 1925 and 27,000 cases during 1924. The increase was most marked in the rural population and small cities. There were 26,700 cases of smallpox with 595 deaths reported in thirty-six states, as compared with 39,500 cases and 813 deaths in 1924. A widespread outbreak of respiratory diseases early in 1926 was largely responsible for high death rates for the country as a whole during the first four months of the year.

Physical Defects of Navy Officers

The annual physical examination of navy officers, required by regulations, has assumed the nature of an annual health examination. A special effort is made, the surgeon general states in his annual report, to have these examinations conducted in a thorough manner, and by carefully selected boards of medical officers. The surveys afford, from year to year, an unusual opportunity to observe the relation of diet, posture, personal hygiene and physical make-up to disease tendencies. There were 9,454 officers of the navy and marine corps examined last year, and 38.72 per cent of those on the active list showed one or more physical defects. Every deviation from the normal was listed as a defect, although some could scarcely be regarded as defects in the true sense. Deviations from the normal were not observed in 61.28 per cent of the officers. The most frequent deviation from normal was error of refraction, 10.88 per cent of the officers showing this defect. Vision was corrected to normal by lenses in 1,010 of the 1,029 officers who had defective vision. The second most common defect was defective hearing, 6.27 per cent of officers showing some degree of defective hearing; the third most common defect was deviation of the nasal septum, 467 (4.94 per cent) showing this defect; overweight was fourth in order, there being 395 officers (4.17 per cent) in this class; pyorrhea was fifth; hemorrhoids sixth, 336 officers (3.55 per cent) showing this defect, and arterial hypertension was seventh, there being 254, or 2.69 per cent, in this class. There were thirteen officers showing syphilitic lesions who were under treatment. The average age of the officers in the medical corps of the navy was 38.6 years.

Comptroller Considers Advisory Council Unauthorized

The comptroller general has decided that the medical council of the veterans' bureau, which has been of great service to the bureau and which is composed of eminent physicians throughout the country, is not authorized by law. The director of the veterans' bureau took the question up with the comptroller, following the decision that authority was lacking for the Secretary of the Interior to appoint the committee to investigate St. Elizabeth's Hospital. The members of the veterans' bureau advisory council are understood to have received $20 a day and expenses while actually on duty, but remuneration was not made for work done in their own offices in connection with the study of veterans' bureau problems. General Hines will appeal to Congress for special legislation to authorize the advisory council to continue its duties, and to sanction work that it has already performed.

Foreign Letters

LONDON

(From Our Regular Correspondent)

Dec. 11, 1926.

Insulin and the Antivivisectionists

Mr. Stephen Coleridge, a well known antivivisectionist, has argued in the *Times* that the discovery of insulin has not been of value in the treatment of diabetes, because the death rate from diabetes has not declined since its introduction. He quotes the registrar general as stating in his last report that the mortality from diabetes "has risen again to a high level notwithstanding the introduction of insulin treatment." This has drawn a cogent reply from Prof. T. R. Elliott, F.R.S., and Sir Walter Morley Fletcher, F.R.S., secretary of the medical research council, who, while admitting that the mortality has not been notably bettered, point out that the statisticians on the staff of the medical research council have analyzed the figures and correlated them with the known sales of insulin. The conclusion drawn from them, which has already been published, is that insulin is not used throughout England as extensively or as efficiently as it should be. Professor Elliott and Sir Walter Fletcher add that the right use of insulin requires on the part of the physician a modern knowledge of food values, and on the part of the patient a stedfast observance of restrictions with regard to certain pleasant foods. Given these conditions, it is a joy to see the miracles wrought by insulin. Necessary surgical operations on diabetic patients, which formerly were dreaded or even refused because they often led straight to death from diabetic coma, are now performed without fear in every hospital, because insulin can protect the patient from that particular danger. Diabetic patients who were emaciated, incapable of work, and borne down by the misery of unending weakness have now, for the three years since insulin was made available in England, been restored to vigorous health.

Faith in the Bottle of Medicine

Faith in the bottle of medicine for all real and imaginary ailments is a characteristic of the English working classes. In insurance practice, in which the check of expense does not act and the physicians are complaisant, this leads to much wasteful expenditure on drugs. In London the insured numbered 1,860,786, July 6, last year, and for these 7,408,518 prescriptions were issued in the course of a year—an average of more than four apiece for the whole number and a much higher figure (not given) for those who were ill or thought themselves so ill as to consult a panel physician. The cost of the drugs was more than $5,000,000. One defense of this extensive drugging is that the bottle of medicine has a psychologic effect on the insured person which makes him feel better. After this, should the poor savage be despised for his faith in incantations and charms?

Women to Be Prohibited from Painting Buildings with Lead Paint

While the house of lords was considering the lead paint (protection against poisoning) bill, an amendment was moved to exclude women from the prohibition to paint buildings with lead paint. In the debate, Lord Dawson (physician to the London Hospital) agreed that there was a prima facie objection to differentiation between the sexes, and the onus of proof lay on those who sought to impose differentiation. He doubted whether that case existed, or at any rate whether it existed sufficiently proved to justify prohibition. There was a further reason; namely, that it was a serious matter in any way to hinder women in seeking employment where they were able to engage in it. The question was, Is the proclivity of women to lead poisoning so marked as compared with men, that it is necessary to prohibit them from taking part in this industry? He admitted that the figures at present available were striking evidence that lead attacked women, especially young women, more often and with greater severity than men. But those figures were mainly taken from the old days in the potteries when women to a large extent undertook the less skilled, the more dangerous forms of work. The next point was that it had now been established that by far the most important route for the lead poison to enter the system was by the respiratory tract. If this bill, as proposed by the government, was efficient in its working, and if it was true that by substituting wet methods for dry methods they could eliminate the dust, he thought the greater proclivity of women would fall very nearly to zero. At any rate it was not safe to use figures and statistics from the days when the lead industry was not properly regulated. With regard to the very important question of pregnancy, it was quite true that lead was a dangerous poison, in that it produced abortion and miscarriages. But here, again, he thought that the women were quite capable of protecting themselves. If dust was prevented from entering the respiratory tract of these women, they would not abort. It must be borne in mind that a large number of people could breathe lead with apparent impunity, just as large numbers could drink alcohol with comparative impunity, and there were others who after a fortnight's work on lead were apt to be poisoned. He therefore suggested that the prohibition of women should be withdrawn from the bill, that it should be left to the option of the secretary of state to regulate whether they should take part in the industry or not, and the whole question should go to the industrial research council in the hope of finding a biochemical test whereby they might know whether persons were prone to lead poisoning or not. If these measures were carried out he thought it would meet all the conditions of the case and meet a great drawback—differential legislation as between men and women. However, the amendment was negatived by 35 votes to 17.

Acute Poliomyelitis in England

In a previous letter, the controversy on the closing of schools because of cases of acute poliomyelitis among the boys was described. The prevalence of the disease is the cause of anxiety in schools and other places where young persons are congregated. The total number of cases in England and Wales reported to the health authorities is sixty-one, which is higher than last week. In London there are five cases, all on the south side of the Thames. At the royal military academy, Woolwich, three cadets out of 206 have been attacked and the institution is isolated. Week-end leave and the visits of friends are canceled until further notice. These restrictions apply to the staff, the cadets and civilian subordinates. One cadet is suffering from paralysis of both arms, but the two other cases are very mild. In London alone there have been twelve deaths from acute poliomyelitis since August. Of 422 cases recorded last year in England and Wales, 156 were fatal. The infection cannot be traced from any local center, as the cases are scattered all over the country from Cornwall to Cumberland. In the five months from the end of June to Nov. 20, 1926, 997 cases have been reported. This exceeds the total number of cases recorded in any twelve months within the last twelve years. At the great military establishment of Aldershot, active measures are being taken, as cases have occurred at Camberley, a few miles away. An order issued to the troops recommends that fresh milk should be pasteurized or boiled before issue. Special attention is being given to the sleeping quarters to insure that every soldier has sufficient air space. The royal military college at Sandhurst has also been placed in quarantine.

PARIS

(From Our Regular Correspondent)

Dec. 8, 1926.

The Treatment of Roentgenologists' Cancer

There are some grounds for hoping that the cancer which succeeds radiodermatitis and to which many roentgenologists have already succumbed will eventually become amenable to treatment. Since the death of Dr. Maxime Ménard, Dr. Lobligeois, another roentgenologist of Paris, has suffered amputation of the right arm. The researches of Professor Bordier, agrégé professor of physics at the University of Lyons, and his results with diathermocoagulation are encouraging. When this method is applied before the appearance of signs of generalization, it is possible to eliminate radically the lesions of radiodermatitis. His most striking results were obtained in the case of Dr. Debedat, director of the radiologic service in the St. André Hospital at Bordeaux. Dr. Debedat had been affected in both hands for twenty-five years. For a year past, frankly epitheliomatous granulations had appeared, with fetid oozing. At Paris and Montpellier, eminent surgeons advised him to have at least two fingers amputated at once. He proceeded to Lyons, where, under local anesthesia, Dr. Bordier applied diathermocoagulation for a period of two minutes to one of the fingers most affected, and for a few seconds to another finger. For a number of days, a liniment composed of olive oil and lime water was applied, which was followed by lavages with an isotonic solution composed of salt water and oxygenated water. The pains disappeared immediately. After an abundant secretion of lymph for three days, the crusts became dry and fell off on the tenth day. At the end of the sixth week, cicatrization was complete. The cicatrix was pliable, nonadherent and scarcely visible. During the six months that have since elapsed, recurrence has not manifested itself.

Homicide Committed by Inmates of Psychopathic Hospitals

Two grave accidents have occurred within a week in the psychopathic hospitals. In Paris, a supervising nurse in the St. Anne Hospital was strangled to death by an inmate. In the Hôtel Dieu of Lyons, Dr. Froment, professor at the Faculté de médecine, was struck by an insane person who feigned to be asleep as he approached. The patient had concealed in his bed a bar of steel which he had patiently sharpened and with which he stabbed the physician, perforating the lung near the heart. Dr. Froment recovered, however, from the wound. The killing of physicians by demented persons is becoming altogether too frequent. The surgeon Guinard was killed thus in the court of the Hôtel Dieu in Paris. Professor Pozzi was assassinated in his office by a maniac who reproached the physician for not having cured him by an operation. It was impossible to foresee these attacks. In a psychopathic hospital it is surprising that better precautions are not taken, since the patients have already been subjected to a selection process and diagnosis of their dangerous disposition has been made. In view of the fatal attack on the nurse in the St. Anne Hospital, the general council of the department of the Seine has decided to discontinue the employment of female supervisors in the wards reserved for male insane patients. The council expressed regret also that the supervising personnel had been inordinately reduced for economic reasons, and that the various detached pavilions had not been connected by telephone, which would make it possible to render mutual aid in case of a local revolt.

Injustice Shown Physicians

The unjust attitude of French courts toward physicians has often been noted in connection with suits brought against them for their conduct in the ordinary exercise of their profession. The tribunal of Amiens summoned Dr. Robert, surgeon to the maternity hospital of that city, under conditions that aroused the indignation of the medical profession. A woman who was admitted to his service as she was about to give birth to a child died within a few hours of a cardiac disorder. Auscultation having revealed that the child was still alive, although the heart beats were growing weaker and weaker, Dr. Robert had the body transferred to the operating room and removed, through an abdominal incision, a child that had been carried almost to term. The child was revived in a few minutes and developed normally. Appearing before the magistrate, the physician was accused of having violated the law which forbids the opening of a cadaver within twenty-four hours after death. Only on intervention of higher authority and following widespread popular indignation, did the magistrate withdraw the charge. The argument presented by the accused physician that postmortem cesarean operations had been frequent in the history of medicine were without effect on the magistrate. However, in Belgium, a physician who was on trial because of the unhappy outcome of an operation was acquitted following the mere reading by the counsel for the defense of the opening address that Prof. Jean Louis Faure had recently delivered before the Congress of Surgery on the rights and duties of the surgeon. In this address, Dr. Faure had emphasized that responsibility cannot attach to a surgeon unless it can be shown that he committed an error in technic.

ITALY

(From Our Regular Correspondent)

Nov. 1, 1926.

Graduates in Pharmacy

The superior council on public instruction has recently rendered an adverse decision on the question of conferring the title of doctor on persons who have completed the university course in pharmacy.

Sanitary Protection Against Leprosy

The ministry of the interior (the general administration of public health) has published a number of regulations with reference to sanitary protection against leprosy. According to these new provisions, the dermatology and syphilology clinics and the larger hospitals will be equipped with rooms for persons with contagious leprosy. During the contagious period, the hospital charges of poor patients will be borne by the state. The state will also grant subsidies to the communes to aid in the financing of measures for the prophylaxis and treatment of leprosy. Patients who cannot be transported to hospitals will be treated gratuitously at home.

National Congress of the Society of Public Health

At the fourth national congress of the Società italiana d'igiene, Professor Sangiorgi of the University of Parma gave an account of the means of combating venereal disease. After mentioning that a "prophylactic spirit" is lacking at present in Italy in the crusade against venereal contagion, the speaker stated that, in the army, during the last four years, the medical department has been practicing individual prophylaxis on an increasing scale by means of the cabinet for prophylaxis and the use of the Gauduchau-Metschnikoff ointment. As a result, the number of men affected with venereal disease was reduced from 11,700 in 1922, or 4.79 per cent of the average military force, to 5,040 in 1925, or 2.02 per cent of the average force. The army had previously demonstrated the necessity of applying the prophylaxis early. The speaker does not consider that persons who have recourse to prophylaxis after three hours have elapsed are properly protected and would prefer not to fix the period of time within which disinfection presumably would be effective, but would rather emphasize that disinfection should be carried out immediately. With that object in view, he would recommend that the ointment

be distributed to every soldier as a part of his equipment, to be carried with him at all times.

Professor Sangiorgi recommended that a similar system of individual prophylaxis be applied also to the civilian population, and that the G-M polyvalent ointment, with which many physicians and pharmacists are still unacquainted, be accepted for admission to the official pharmacopeia of Italy. He suggested further that the ointment be manufactured by the Istituto chimico-farmaceutico militare.

Following the address by Sangiorgi, the congress took action on the international accord subscribed to at the convention in Brussels by thirteen nations with regard to the medical aid to be given sailors of merchant vessels of the signatories, when affected with venereal disease.

Prizes in Ophthalmology

The Società italiana di oftalmologia has awarded the following prizes: the Cirincione international prize, to Professor Dejan of the ophthalmologic clinic of Montpellier; the Cidonio prize, to Professor Cattaneo, assistant in the Clinica Oculistica at Rome; the prize in embryology of the eye, to Professor Versari, director of the Anatomic Institute in Rome; the annual prize in ophthalmology, to Professor Favaloro, assistant in the Clinica Oculistica at Catania, and the Colangeli prize, to Dr. Scullica, assistant in the Clinica Oculistica at Sassari.

The Death of Dr. Grossich

Dr. Antonio Grossich, surgeon, of Fiume, and senator of the realm, has died at the age of 77. He was a reformer in the method of preparing the operative field and in the treatment of wounds, having proposed, at the International Congress of Surgeons, the painting of the unwashed skin with tincture of iodine. It will be recalled that, when Grossich proposed his new method, lavage of the skin for a quarter of an hour was customarily employed.

A Proposal to Create a Ministry of Public Health

The Congresso medico calabro-siculo passed unanimously a resolution proposed by Dr. Bartolone, as follows:

WHEREAS, The sanitary services of the state, to which the national government has given a new impulse, are only partly centralized in the "general administration of public health," which is a subdepartment of the ministry of the interior; therefore, *be it*

Resolved, That the medical societies and syndicates shall present to the government the need of concentrating all the said services in a new ministry of health, hygiene and sanitary aid.

The Growing Surplus of Physicians

In connection with the evidences of economic strain in professional circles that are manifest in Italy, Professor Cirincione stated recently that, whereas Italy needs at present around 32,000 physicians, the actual number practicing is nearly 15,000 more than are needed. On the other hand, the nineteen Italian universities turn out each year about 800 graduates in medicine and surgery, whereas only 500 are needed to replace those who die or retire from active practice. Thus, 300 more physicians are added annually to the already existing surplus, and are compelled to find openings in some place or other.

The main cause for this surplus, which may be noted also in other professional fields, is the fact that many merchant, artisan and peasant families prefer to prepare their sons for liberal and professional careers rather than for industrial or commercial life.

The Plenary Assembly of the Superior Council on Public Health

At the plenary session of the superior council on public health, a short address was given in commemoration of the deceased members of the council, whereupon Dr. Messea, director general of the public health service, discussed the present sanitary conditions in Italy and in the neighboring foreign countries, or in the countries with which Italy has more immediate contact. He gave also an account of the work of the general administration of public health during the year, including the activities of its scientific laboratories —chemical, bacteriologic and (the most recent acquisition) physical; the sanitary services on the seacoast; and the special hygienic and prophylactic measures introduced by reason of the "health year." In addition to the progress made in the crusade against social diseases, the account dealt with the control of serums and vaccines, the regulation of medical practice (for example, the recent reciprocity agreement entered into with England), and the carrying out of hygienic work by means of loans granted by the ministry of the interior. During the year, such loans amounted to 140,000,000 liras, or $6,300,000, used for the construction of water works, and 22,000,000 liras, or nearly a million dollars, for other hygienic enterprises, such as cemeteries, sewerage and isolation hospitals.

During the discussion that followed Dr. Messea's address, Professor Vivante called the attention of the council to the fact that public health work is hindered because enough physicians are not willing to become practicing hygienists, owing to the inadequate remuneration. He recommended therefore that health officers be better paid.

Professor Sclavo suggested that in the state examination for the practice of medicine greater importance should be given to hygiene, and that a special examination be instituted as a basis for the granting of the title of "expert hygienist," or doctor of public health.

Professors Di Vestea and Casagrandi proposed that instruction in hygiene at the universities be given in the sixth year, instead of the fifth year, as is the custom at present, as students would retain it better then.

Professor Belloni expressed the desire that the training of physicians in pharmacology and posology be improved, remarking that young physicians know so little of the art of prescription writing that they prefer to prescribe proprietary medicines.

Professor Valagussa emphasized the present lack of clinical preparation in the field of infectious and contagious diseases to be observed in students of medicine, and suggested that students of the fifth and sixth year be allowed, under proper restrictions, to visit the isolated infectious disease wards at the hospitals.

Professor Baduel, director general of the Italian Red Cross Society, recounted the many forms of activity developed by the society, particularly with regard to social sanitary measures and hygienic propaganda.

Announcement of Competitive Prizes

At the Venice Institute of Science, Letters and Arts, the following competitive prizes have been announced: (1) the Balbi-Valier Foundation, 6,000 liras, to the Italian who, during 1926 and 1927, shall have advanced the medico-surgical sciences, by the invention of some instrument, by some discovery that will mitigate human suffering, or by the publication of some scientific work of exceptional value; (2) Angelo Chimich Foundation, 15,000 liras for the best work on the subject "Effects of Traumatic Lesions on the Central Nervous System Studied Throughout Their Course"; (3) Angelo Chimich Foundation, 9,000 liras for the best work on the influence of the endocrine glands on the evolution of experimental tumors.

In addition, the minister of national economics has announced two competitive prizes, one of 6,000 and one of 3,000 liras, for a manual on the scientific organization of labor in industrial plants.

VIENNA

(From Our Regular Correspondent)

Nov. 10, 1926.

Death of Prof. Dr. S. Ehrmann, Dermatologist

The University of Vienna, and dermatology in particular, have suffered a great loss in the death of Prof. Dr. Salomon Ehrmann. His first researches were in the field of physiology. He then took up dermatology as a specialty, became an assistant to Kaposi and to Neumann, and was later placed in charge of a hospital department of dermatology and syphilology. Some of his chief works are: Studies on Pigmentation, Physiology and Histology of the Skin, Origin of Neoplasms, Differential Diagnosis and Treatment of Skin Diseases, and Atlas of Skin Diseases (masterfully illustrated by the author). In dermatology he introduced many new drugs, medicaments and methods. He developed especially the radiologic treatment of skin disease. He was the first to discovered *Spirochaeta pallida* in the nerve sheath of syphilitic persons.

Congress of the German Urologic Society

During the first week in October, the seventh Congress of the Deutsche Gesellschaft für Urologie was held in Vienna. The attendance was large from Germany and Austria, and many representatives came also from France, Italy, Hungary, Czechoslovakia, Russia and North America. Professor Blum of Vienna served as chairman. As more than 150 addresses and papers had been announced, it was decided that Austrian physicians should take up as little time as possible, in order that foreign scientists might have ample time for their papers. The transactions occupied three days of eight hours each, for each of which one main topic was selected. The three main topics were: (1) pain in urology and how to combat it; (2) anuria, its pathology and treatment, and (3) neoplasms of the urinary bladder, their pathology and treatment. With the main topics were associated a number of other problems, such as: Neoplasms of the kidney and the efferent urinary passages, hypertrophy of the prostate, roentgenologic diagnosis of urologic affections, and physiologic problems of the bladder in the aged. Lack of space permits discussion of only the most important papers.

PAIN IN UROLOGY AND ITS TREATMENT

Albrecht of Vienna has performed many comparative tests on inhalation narcosis and local anesthesia in urologic operations. He rejects chloroform entirely and uses in its place, with great success, dichlorethylene. Lowsley of New York has employed regional anesthesia in many cases with excellent results, and is of the opinion that general anesthesia is rarely necessary for urologic operations. He presented numerous slides, photographs and films in demonstration of his operative method. A large number of Austrian and foreign physicians took part in the discussion, from which, as the chairman remarked in conclusion, the principle stood out clearly that modern urology employs in preference local anesthesia, and that general narcosis is necessary only in exceptional cases but is contraindicated particularly in cardiac and aged patients.

ANURIA: ITS PATHOLOGY, PHARMACOLOGY AND THERAPY

The principle speakers were Fahr of Hamburg, Jungmann of Berlin and Rubritius of Vienna. Rubritius dealt with the clinical and therapeutic aspects of anuria. There are two forms of anuria: excretory and secretory. Excretory anuria arises from blocking or pressure on both ureters (calculi, blood clots, pus collections) or on one ureter if the other kidney is destroyed, absent or reflexly impaired. Excretory anuria may be associated also with tumors of the uterus, rectum or prostate. To secretory anuria belong prerenal anuria due to circulatory disturbance or to reduction of water balance; the anuria associated with nephritis and nephrosis, in bilateral involvements of a different nature (tumors, tuberculosis, suppurations) and central or reflex anuria. As common causes of anuria may be mentioned mercuric chloride or chloroform nephrosis after operations; eclampsia, glomerulonephritis, appendicitis, disorders of or operations on the bile ducts and hysteria. Reflex anuria is rare but does occur, especially as the result of irritation from a distance (from the reproductive organs or bladder), or after trauma of an operative or mechanical nature. For diagnosis, the ureteral catheter and the roentgenogram are especially important. In the treatment of occlusion, the ureteral catheter is the main therapeutic reliance. If the anuria lasts for forty-eight hours, an operation is indicated; either nephrostomy or—in nephritis or nephrosis—decapsulation. In reflex anuria that is frankly diagnosed, a trial of blocking of the splanchnic nerve may be made. In the discussion, a number of authors denied the existence of reflex anuria (particularly von Kümmel of Hamburg), though others maintained that they had observed it. Fahr of Hamburg discussed anuria from the standpoint of pathologic anatomy and microscopic research, calling attention to the inflammatory manifestations in the region of the glomeruli. He emphasized, however, that as yet a uniform conception of its mechanism does not exist. Collaboration of the clinician and the anatomist is needed in order to clear up the situation. Jungermann of Berlin considered the physiologic processes that lead to anuria; these lie not only in the kidney but are caused also by such factors as lowered blood pressure, loss of body fluids and toxins. Lichtenstein of Vienna recounted a number of experiments on animals, which prove that reflex anuria can develop only when the renal parenchyma has suffered a primary injury.

NEOPLASMS OF THE URINARY BLADDER

The discussion of the third main topic, "Neoplasms of the Urinary Bladder, Their Pathology and Treatment," was opened by Lichtenberg of Berlin, Werner of Heidelberg and Joseph of Berlin. Of especial interest was the paper of Joseph on the intravesical treatment of malignant tumors. Whereas, in the beginning of urologic surgery, innocent bladder tumors (papillomas) were removed by radical operation, Casper and Nitze have improved the endovesical method to such an extent that one achieves better results in papillomas than with the operation from without. Recently, the endovesical method has widened its indications still further. In resection of the bladder in malignant tumors, more than 80 per cent recur. A resection operation leads almost always to exacerbation of the patient's condition and to shortening of his life. Only total extirpation of the bladder affords a prospect of cure; but difficulty in taking care of the ureters is the chief obstacle. In a large number of carcinomas of the bladder Joseph adopted palliative measures. He controlled the hemorrhage and ichorous discharge by trichloracetic acid. In thirty cases he employed electric, thermal and chemical coagulation combined. In 20 per cent of the cases he secured excellent results. Endovesical methods are not adapted to carcinomas in the advanced stages. In such cases, he recommends bilateral nephrostomy and total removal of the bladder. Implantation of the ureters in the intestine constitutes too much of a shock for greatly weakened patients and should therefore be avoided. In summing up the criteria for the treatment of bladder tumors, the following three points were emphasized: 1. Resection of the bladder should be resorted to only in the case of tumors located in the region of the neck of the bladder or in those which have not involved much of the anterior or posterior wall. If the tumor is located elsewhere, resection is almost always very dangerous and results are unfavorable.

2. Intravesical treatment will not effect a radical cure, but it will control for a long time the bleeding and ichorous discharge. 3. In treating extensive tumors or such as have an unfavorable location, nephrostomy, followed by two-stage total extirpation of the bladder, is recommended.

OTHER TOPICS

In addition to these three main topics, many other subjects were discussed, of which only a few can be mentioned. Illyes of Budapest related his experiences with 700 kidney operations, all of which were performed under local anesthesia. On the basis of these observations, he recommended doing away with general anesthesia for operations on the kidney. Scheele and Oppenheim of Frankfort-on-the-Main had observed bladder tumors in persons employed in aniline factories and thought they were due to chemical injuries caused by the by-products of aniline. Such tumors do not appear in workmen who handle the finished products. Bauer of Vienna told of his success in producing bladder tumors by applications of tar to experimental animals. Casper emphasized the importance of roentgenograms of the ureters and the renal pelvis, and stated that the frequently diagnosed strictures and distentions of the ureters, together with dilatation of the renal pelvis, were commonly without basis in fact. He discussed at some length the introduction of opaque fluids into the upper urinary passages and recommended that, in reaching a diagnosis, all physiologic and irritative factors be considered. Luys of Paris demonstrated his method of "forage de la prôstate" (tunneling operation on the prostate), which he has employed in 146 cases to combat hypertrophy. It consists in boring a tunnel into the enlarged prostate, under the control of the eye and operating through the natural urinary passages. It is carried out by means of electrocoagulation applied to a completely dry tissue, which factor is important. Luys has devised a cystoscope with which the fluids are automatically eliminated by a suction process while the electric current is operating. There have not been any fatalities, and the functional results are good. The indications include all small and moderate hypertrophies but not large adenomas. In 90 per cent of the cases, the patients were well satisfied with the results.

Bachrach of Vienna reported on his success with intravenous injections of a 1 per cent aqueous solution of sodium silicate to combat the initial symptoms of prostatitis. He gave an injection every second day—from six to twenty injections in all—and was able by this method to strengthen the bladder muscle because the silicic acid accumulates in it. The patients soon lose their nocturnal pollakiuria and sleep more soundly. However, the necessity of operating in chronic hypertrophy of the prostate is not affected by the injections. Oehlecker of Hamburg dealt with the advantages of blood transfusion in urologic cases; more particularly, after blood losses as the result of operations, but also for the improvement of the general condition before operations, so that such intervention may be resorted to. This applies to patients who have lost large quantities of blood or who have been weakened by septic conditions. With a proper choice of the donors and the method of transfusion, untoward consequences need not be feared. Salib of Constantinople gave a demonstration concerning a man who presented a double genital apparatus, the supernumerary penis being more especially developed. This malformation has never been previously observed.

In connection with the congress, there was an exhibit of a technical nature, which included many instruments for endovesical treatment—cystoscopes and other devices for illumination and examination, among others a so-called retrograde operative instrument for endovesical operation on the sphincter vesicae.

Berlin was chosen as the meeting place for the next congress. Before the conventionists returned home, they were invited to take part in excursions to Budapest, Baden (near Vienna), and the Semmeringberg.

BERLIN

(From Our Regular Correspondent)

Dec. 11, 1926.

The Mortality in Germany in 1924, According to Age, Sex and Causes of Death

According to official statistics, the total number of deaths, exclusive of stillbirths, in Germany (not including the Saar region) in 1924 was 759,075, as compared with 857,898 in 1923, or 12.2 per thousand of population as against 13.9. The decrease in mortality, which has been observable for a number of years, was exceptionally marked in 1924 as compared with 1923. The diminution was greatest in the 1-5 age group (34 per cent). In comparison with the last prewar year, the mortality of infants and of the 1-10 age group has decreased most (from 28 to 43 per cent), whereas the mortality of males and females more than 1 year old has decreased 17 and 14 per cent, respectively. Of 1,000 boys born in 1924 (living births), 120 died during the first year of life, as compared with 141 the previous year. Of 1,000 girls, ninety-eight died during the first year of life, as against 116 in 1923. As compared with 1913, the infant mortality in 1924 for the first month of life decreased scarcely 10 per cent, but for the eleven following months the decrease ranged from 35 to 44 per cent, the girl babies showing a greater improvement than the males.

The mortality in the various years of early childhood is given in the adjoining table.

Number of Deaths per 10,000 Children Entering on the Second Year of Life

Age group	1913	1923	1924
1-2 years	294	227	160
2-3 years	105	84	63
3-4 years	67	54	38
4-5 years	48	41	29
1-5 years	514	406	290

In the remaining age groups, the mortality in 1924 was higher than that in 1913 only in the 20-25 age group (males) and in the 85-90 age group (both sexes), which may doubtless be regarded as a further manifestation of the abnormal mortality observed in the preceding years in the 15-30 and in the 70 plus age groups (both sexes). With the exception of the groups mentioned, the mortality for the various groups in 1924 as compared with the prewar mortality shows a marked reduction; for example, in the 40-45 age group, males, the diminution amounts to 73 per cent and in the 35-40 age group, females, to 84 per cent.

In 1924, as heretofore, the mortality of women in the 30-40 age group was higher than that of men of the corresponding group, owing to the dangers incident to child bearing. In the remaining age classes, however, the mortality of the women was lower than that of the men, in spite of the greater decrease in mortality among the men. This applies also to the 10-15 age group, in which, in the preceding years, the mortality of females had been greater than that of males. As compared with the previous year, the decrease in mortality extended to all four quarters under weather conditions that were favorable, in the main. The slight differences in the mortality of the separate quarters may be explained by the usual seasonal fluctuations.

In studying the causes of death in 1924, it is found that the marked reduction in mortality, especially among children

and adults under 30 years of age, is due mainly to the decreased mortality from tuberculosis and acute infectious diseases, with their frequently fatal lung complications. The diminished mortality in infancy and early childhood is partly due to the reduction of fatalities in infectious and other forms of gastric and intestinal catarrh and the lessened frequency of lack of vitality at birth.

Of congenital weakness and malformations, in 1924 there died in Germany 26,499 boys and 20,465 girls, or respectively 4.0 and 3.3 per hundred living births, as compared with 4.3 and 3.6 in 1923 and 4.1 and 3.3 in 1913. The percentage of infants lacking sufficient vitality to survive has therefore been reduced to the prewar status.

The number of fatal cases of childbed fever decreased from 3,846 in 1923 to 3,628 in 1924. On the other hand, the number of deaths from other sequels of childbirth and childbed increased by around 200 to 3,083.

The marked reduction in mortality in the 70 plus age group is manifested more particularly in the decreased number of deaths from senile weakness, a diminution of around 16,700 having been recorded.

The number of deaths from infectious diseases of children (scarlet fever, measles, diphtheria and whooping cough) amounted in 1924 to 11,317, as against 20,171 in 1923. The deaths from measles, which showed an increased incidence in 1923, were reduced by about 6,600. In the three other children's diseases, the reduction in mortality observed in 1923 continued further in 1924. The mortality in other infectious diseases, which occur chiefly in children (mumps, chickenpox, especially dysentery, and also epidemic torticollis), was lower than for the previous year; however, deaths from infantile paralysis showed an increase. A comparison of the mortality from children's diseases for the years 1923 and 1924 is given in the adjoined tabulation.

Mortality from Children's Diseases in Germany

	1924	1923 (except Mecklenburg-Strelitz)
Mumps	9	14
Chickenpox	41	46
Dysentery	684	1,256
Epidemic torticollis	458	640
Infantile paralysis	103	86

Typhoid, which appears every summer in epidemic form in certain localities, claimed in 1924 about the usual number of victims (1,900).

Diseases of animals transmissible to man and other epidemic diseases that constitute more or less of a general menace carried off fewer persons in 1924 than in 1923, though anthrax, glanders and actinomycosis showed a slight increase, the total number of deaths being only 145 in 1924 as against 162 during the previous year. A comparison of the incidence of these diseases is adjoined.

	1924	1923		1924	1923
Rabies	18	30	Actinomycosis	35	23
Anthrax	23	18	Leprosy	1	1
Glanders	1	0	Cholera	0	0
Trichinosis	1	4	Malaria	60	63
Smallpox	6	10	Plague	0	0
Typhus	1	11	Recurrent fever	0	2

The mortality from erysipelas and other traumatic infectious diseases shows a reduction as compared with the previous year, more particularly in infants and in persons above 70 years of age. Likewise, the deaths from venereal diseases, more than 50 per cent of which were in infants, being, for the most part, cases of congenital syphilis, have decreased.

The reduction in the mortality from tuberculosis has had great influence on the general mortality (74,484 deaths, as compared with 93,074 in 1923), a decrease of 20 per cent, whereas the mortality from tuberculosis in 1923 was greater than the prewar status. The reduction in mortality over the previous year was more marked in the younger age classes than in the older age groups, and the decrease in the mortality of males was greater for the most part than that in the mortality of females. The mortality from pulmonary tuberculosis decreased from 12.2 per 10,000 population in 1913 and 12.7 in 1923 to 10.0 in 1924. There was also a considerable decrease in the number of deaths from influenza (by more than 9,300), especially in infants and in persons over 70 years old; however, the deaths from influenza (about 14,600) are still about three times the number recorded in the prewar period. Furthermore, the mortality from pneumonia and other diseases of the respiratory organs shows a reduction, as compared with the previous year, in all age classes; more particularly, however, in the 1-30 and in the 1-15 age groups.

Of diseases of the nervous system (excluding cerebral apoplexy), there died more than 5,300, or 14.5 per cent, fewer persons than in 1923. The mortality was reduced especially in children of school age, while the oldest age classes showed the slightest reduction.

The mortality from gastric and intestinal catarrh, and also from acute gastro-enteritis, shows a diminution of 10,500 cases, or 28 per cent. The decrease was due mainly to comparatively low summer temperatures. In the mortality of infants and young children, only a very slight summer peak was observed. The number of deaths from appendicitis increased from 3,100 in 1923 to 3,504 in 1924. The mortality from other diseases of the digestive organs was reduced, in general, about 6 per cent; but in infants and in children of school age, more than 13 per cent. The mortality from diseases of the urinary and reproductive organs has decreased, having again reached the low mark of the postwar years 1920 and 1921.

The deaths from diseases of the circulatory organs decreased in the younger age groups; but in persons over 30 years of age, on whom the major burden of this mortality falls, the change has not been noteworthy. In 1923, the mortality from cerebral apoplexy was relatively low; in 1924, the number of deaths from this cause increased by 10 per cent. An increase of cancer mortality was recorded, which affected more particularly persons above 70 years of age. The mortality from other neoplasms did not show marked changes.

The number of suicidal deaths in 1924 increased, by more than 1,000, to 14,338. On the other hand, the number of fatal accidents decreased by around 7 per cent, dropping to 22,759. In the 15-30 age group, males, there was a decrease of nearly 1,000 fatalities, or 15.5 per cent. As an expression of the improvement in conditions affecting public safety, the number of deaths occurring through murder, homicide and execution of criminals showed a decrease of 231 over 1923, the total being 1,373. The number of infants deprived of life by violent means increased by 112 to 322.

According to the status of 1924, the most important causes of death in the various age groups were: in infancy, lack of vitality, malformations, disorders of digestion, and respiratory disease; in the early period of childhood, respiratory disease and acute infectious diseases; in children of school age, and particularly in the 15-30 age group, tuberculosis, and, secondarily—in males—accidents. In the 30-60 age group, the main causes of death were disorders of the circulation (including cerebral apoplexy), tuberculosis, and cancer. In the 60-70 age class, the respiratory diseases again came into the foreground, whereas tuberculosis caused only from 4 to 5 per cent of the deaths. In the 70 plus age group, the main causes of death were senile weakness and disorders of the circulation.

Marriages

JOHN PAUL SCHREIBER, Rochester, N. Y., to Miss Elizabeth Percy of Churchville, Sept. 11, 1926.

CHARLES D. SHANNON, Seattle, to Miss Elsie D. Baumann of Walla Walla, Wash., recently.

LORENA WELBOURNE, Columbia, S. C., to Mr. Carl B. Shelley of Harrisburg, Pa., Dec. 23, 1926.

WALTER W. ARMSTRONG, Chicago, to Miss Kathleen Musson of Kansas City, Mo., January 1.

CHARLES T. RUSSELL, JR., to Miss Grace Myers, both of Philadelphia, Dec. 11, 1926.

MEYER J. SIMON to Miss Rose Granovetter, both of Brooklyn, Dec. 28, 1926.

Deaths

William R. Murray ✠ Minneapolis; Rush Medical College, Chicago, 1897; professor of ophthalmology and otolaryngology and chief of the department, University of Minnesota Medical School and the University of Minnesota Graduate Medical School; member of the American Academy of Ophthalmology and Oto-Laryngology; formerly on the staffs of the Swedish, City and Asbury hospitals; aged 57; died, Dec. 27, 1926, of septicemia, following an infection received while performing an operation.

Herbert O. Shiffert ✠ Med. Inspector, Commander, U. S. Navy, retired, Old Zionsville, Pa.; Medico-Chirugical College of Philadelphia, 1899; was commissioned as lieutenant in the Navy in 1900 and was retired, June 3, 1926; served during the World War; aged 54; died, Dec. 3. 1926, at the Germantown Hospital, Philadelphia, of lobar pneumonia.

Bernard Richard Kelly, Watervliet, N. Y.; University of Maryland School of Medicine and the College of Physicians and Surgeons, Baltimore, 1915; member of the Medical Society of the State of New York; served during the World War; aged 36; died, Aug. 24, 1926; at Mount Carmel, Conn., of diabetes and myocarditis.

John Frederick Oechsner ✠ New Orleans; Medical Department of the Tulane University of Louisiana, New Orleans, 1894; formerly professor of orthopedics and surgical diseases of children, New Orleans Polyclinic; on the staff of the Charity Hospital; aged 58; died, Dec. 23, 1926, of heart disease.

David C. Whitney, Rice Lake, Wis.; National Medical University, Chicago, 1896; member of the State Medical Association of Wisconsin; formerly health officer and city physician; on the staff of the Lakeside Hospital; aged 70; died, Oct. 21, 1926, of valvular heart disease.

Robert Bevan Kershaw, Menlo Park, Calif.; Northwestern University Medical School, Chicago, 1907; formerly a practitioner in Chicago; aged 47; died, Dec. 10, 1926, at the Stanford Hospital, San Francisco, of shock following an operation on the gallbladder.

Willard Augustus Paul, Weston, Mass.; Hahnemann Medical College and Hospital, Chicago, 1881; formerly assistant in gynecology and lecturer on theory and practice, Boston University School of Medicine; aged 71; died, Dec. 2, 1926, of cerebral hemorrhage.

William H. Moorhead, Stuttgart, Ark.; Baltimore Medical College, 1886; member of the Arkansas Medical Society; past president the Arkansas County Medical Society; veteran of the Spanish-American War; aged 62; died, Dec. 2, 1926, of angina pectoris.

Arthur Earle Wickins, Sedgewick, Alta., Canada; Hering Medical College, Chicago, 1900; University of Toronto Faculty of Medicine, Toronto, Ont., 1901; aged 52; died, in December, 1926, at a hospital in Edmonton, of heart disease.

Samuel Adams, Hoquiam, Wash.; Kansas Medical College, Topeka, 1908; member of the Washington State Medical Association; served during the Spanish-American and World wars; aged 49; died, Dec. 2, 1926, at Tacoma, of sarcoma.

Robert Lee Grant ✠ Texarkana, Ark.; Medical College of Ohio, Cincinnati, 1886; past president of the Miller County Medical Society; on the staff of the Michael Meagher Memorial Hospital; aged 62; died, Dec. 7, 1926, of nephritis.

Freeman Sheldon Hunter, Bedford, Ind.; Medical College of Ohio, Cincinnati, 1876; formerly secretary of the Lawrence County Medical Society; county health officer; aged 78; died, Dec. 2, 1926, of cerebral hemorrhage.

George N. Simpson, Warren, Ohio; Medical Department of the University of Wooster, 1888; member of the Ohio State Medical Association; city health commissioner; aged 67; died, Dec. 2, 1926, of cerebral hemorrhage.

Hedley Williamson ✠ Detroit; McGill University Faculty of Medicine, Montreal, Que., Canada, 1890; aged 57; died, Nov. 26, 1926, at the Harper Hospital, of carcinoma of the sigmoid and postoperative pneumonia.

John Melvin Vantilburg, Lorain, Ohio; Cleveland College of Physicians and Surgeons, 1898; Civil War veteran; aged 77; died, Dec. 6, 1926, at St. Joseph's Hospital, of carcinoma of the prostate.

Roscoe Edmunds Stepfield ✠ Barberton, Ohio; Cleveland-Pulte Medical College, Cleveland, 1914; served during the World War; aged 37; died, Dec. 15, 1926, at Columbus, of cardiovascular disease.

Harry Sims Norton, San Antonio, Texas; University of Illinois College of Medicine, Chicago, 1916; aged 34; died, Dec. 5, 1926, of general peritonitis, following an operation for appendicitis.

John David Morris, Montgomery, Ala.; Atlanta Medical College, Georgia, 1914; member of the Medical Association of the State of Alabama; aged 42; died, August. 9, 1926, of gastro-enteritis.

Harry Bigelow Holmes, Adams, Mass.; Medical Department of Columbia College, New York, 1892; member of the Massachusetts Medical Society; aged 63; died, Oct. 22, 1926, of pneumonia.

Frenn Lesley Preston ✠ Eldorado, Kan.; Northwestern University School of Medicine, Chicago, 1911; on the staff of St. Luke's Hospital; aged 45; died, Nov. 26, 1926, of endocarditis.

Emil T. Erickson ✠ Caldwell, Kan.; University of Kansas School of Medicine, Rosedale, 1908; aged 43; died, Nov. 22, 1926, of peritonitis, following an operation for empyema of the gallbladder.

Clarnede Pleasant Shirkey, Charleston, W. Va.; College of Physicians and Surgeons, Baltimore, 1896; aged 51; died, Dec. 3, 1926, at the Coal Valley Hospital, Montgomery, of pneumonia.

John Joseph Gildea, Wilkes-Barre, Pa.; Medico-Chirurgical College of Philadelphia, 1912; member of the Medical Society of the State of Pennsylvania; aged 37; died, Dec. 8, 1926, of pneumonia.

Jason Harvey Moore, Clinton, Okla.; Jefferson Medical College of Philadelphia, 1882; aged 68; died, Nov. 20, 1926, at the home of his son in Hobart, of inanition, colitis and influenza.

Frederick Charles Holzman, Chicago; Bennett Medical College, Chicago, 1912; on the staff of the Chicago General Hospital, where he died, Dec. 9, 1926, of cervical cellulitis, aged 38.

Simon Gerberich Stein ✠ Muscatine, Iowa; Chicago Medical College, 1889; president of the First National Bank of Muscatine; aged 65; died, Dec. 3, 1926, of carcinoma of the cecum.

Samuel Charles Dudley, Church Hill, Md.; University of Maryland School of Medicine, Baltimore, 1867; formerly a druggist; aged 83; died, Nov. 23, 1926, of heart disease.

William Allen Oliver, Camden, Mich. (licensed, Michigan, 1900); member of the Michigan State Medical Society; aged 73; died, Nov. 26, 1926, of carcinoma of the liver.

Granville Pearl Bailey ✠ Harlan, Ky.; Louisville Medical College, 1894; past president of the Harlan County Medical Society; aged 61; died, Dec. 2, 1926, of heart disease.

William Terry, Dilley, Texas (licensed, Texas, under the Act of 1907); member of the State Medical Association of Texas; aged 68; died, Oct. 6, 1926, of angina pectoris.

William Algernon Winship ✠ San Diego, Calif.; L. S. A., London, 1885; M. R. C. S., England, 1885; aged 66; died, Sept. 3, 1926, following an operation for gastric ulcer.

Edward Everett Peters, Bradley, Ohio; American Medical College, St. Louis, 1883; aged 63; died, Nov. 20, 1926, at St. Luke's Hospital, Chicago, of aortic aneurysm.

C. V. Lynde, Medford, Minn.; Hahnemann Medical College and Hospital, Chicago, 1883; aged 68; died, Nov. 27, 1926, at a hospital in Owatonna, of diabetes.

Benjamin F. Green, Drew, Miss.; University of Tennessee College of Medicine, Memphis, 1899; aged 51; died suddenly, Dec. 9, 1926, of acute dilatation of the heart.

Henry Stoddard Lyman, Omaha; Columbia University College of Physicians and Surgeons, New York, 1899; aged 56; died, Nov. 30, 1926, of paralysis.

Samson American, San Francisco; Medical Department of Columbia College, New York, 1864; aged 84; died, Dec. 4, 1926, of acute nephritis and myocarditis.

Albert Gallatin Binkley, Nashville, Tenn.; Vanderbilt University Medical Department, Nashville, 1879; aged 67; died, Sept. 26, 1926, of chronic nephritis.

John Percy Bennet, Glen Ellyn, Ill.; Bennett Medical College, Chicago, 1897; aged 56; died, Nov. 22, 1926, at the Midwest Hospital, Chicago, of diabetes.

Burton Clark Bradshaw ✠ Royal Oak, Mich.; University of Michigan Medical School, Ann Arbor, 1891; aged 62; died recently, of carcinoma of the rectum.

John Gardner Perry, Boston; Medical School of Harvard University, Boston, 1863; Civil War veteran; aged 86; died, Dec. 1, 1926, of coronary sclerosis.

John Townsend, San Francisco; Hahnemann Medical College of the Pacific, San Francisco, 1884; aged 74; died, Aug. 30, 1926, of heart disease.

Elizabeth Madison, East Orange, N. J.; Hahnemann Medical College and Hospital, Chicago, 1906; aged 62; died, Dec. 5, 1926, of heart disease.

Henry H. DePew, Des Moines; Chicago Homeopathic Medical College, 1887; Civil War veteran; aged 88; died, Nov. 27, 1926, of pneumonia.

Lucius McAlister, Polo, Ill.; Hahnemann Medical College and Hospital, Chicago, 1880; aged 67; died, Nov. 20, 1926, of carcinoma of the spleen.

John Morgan White, Russell, Ky.; Jefferson Medical College of Philadelphia, 1872; aged 79; died, Dec. 17, 1926, following a long illness.

Eugene F. Storke, Los Angeles; Hahnemann Medical College and Hospital, Chicago, 1874; aged 78; died, Oct. 19, 1926, of chronic myocarditis.

Edward Dabney Starke ✠ Norfolk, Va.; Medical College of Virginia, Richmond, 1903; aged 50; died suddenly, Nov. 21, 1926, of heart disease.

Charles A. Pettiford, Youngstown, Ohio; Indiana Eclectic Medical College, Indianapolis, 1892; aged 59; died, Oct. 4, 1926, of pneumonia.

Albert Eaton Unger, Dundee, Mich.; Cleveland College of Physicians and Surgeons, 1891; aged 65; died, Dec. 8, 1926, of angina pectoris.

Walter Henry Keen, Brooklyn; Long Island College Hospital, Brooklyn, 1897; aged 59; died, Dec. 14, 1926, of cerebral hemorrhage.

Annibale Salaroglio ✠ Clinton, Ind.; University of Siena, Italy, 1898; aged 52; died, Dec. 1, 1926, of a self-inflicted bullet wound.

Adda Wiley Ralston, Omaha, Neb.; Creighton Medical College, Omaha, 1899; aged 59; died, recently, of organic heart disease.

Trever Crandall Yates ✠ New York; Albany Medical College, 1904; aged 47; died, Nov. 20, 1926, of bronchopneumonia.

William Rose Hynes, New York; Rush Medical College, Chicago, 1900; aged 54; died, Dec. 13, 1926, of chronic nephritis.

F. M. Harned, Washington, Ind.; Indiana Medical College, Indianapolis, 1875; aged 78; died, Dec. 1, 1926, of heart disease.

Fugate F. Wells, Springville, Tenn.; Kentucky School of Medicine, Louisville, 1908; aged 40; died, Nov. 22, 1926, of typhoid.

Diego Delfino, Follansbee, W. Va. (licensed, Vermont, 1908, and Ohio, 1910); aged 50; was shot and killed, Nov. 10, 1926.

Edwin Younkin, Chicago; Eclectic Medical Institute, Cincinnati, 1866; aged 88; died, Nov. 12, 1926, of gastric ulcer.

George C. Willson ✠ Nevada, Mo.; St. Louis Medical College, 1879; aged 74; died, Nov. 28, 1926, of bronchopneumonia.

James J. Weir, Benton Harbor, Mich. (licensed, Michigan, 1900); aged 90; died, Dec. 6, 1926, following a long illness.

Hans H. Sievers ✠ Tama, Iowa (licensed, Iowa, 1888); aged 68; died, Dec. 6, 1926, of cerebral hemorrhage.

Correspondence

"OXYGEN LACK AND CARDIAC OUTPUT"

To the Editor:—I find it difficult to accept some points in the article by Harrison and Blalock on this subject (THE JOURNAL, Dec. 11, 1926, p. 1984). I refer particularly to the implication that anemia injures the heart and the statement that digitalis is indicated in the treatment.

1. These investigators, after mentioning the increase in the cardiac output, say: "This compensatory increase in the cardiac output is not without its disadvantages, as the overworked heart may finally succumb to the strain of prolonged increased work." I believe it is correct to assert that one of the contributions of the late Sir James Mackenzie is the refutation of the belief that the normal heart is injured by increased work. I am not aware of any reliable evidence that harmful effects may be ascribed to increased work of prolonged duration, and the literature contains many papers in support of the absence of harmful results. (I will limit myself to one reference: Reid, W. D.: The Abuse of Rest in Cardiac Therapy, *Boston M. & S. J.* **194**:1039 [June 3] 1926).

If the heart is really harmed by severe chronic anemia, it seems reasonable to expect that some lesions will be present at necropsy. Such was not the case in the autopsy protocols at the Boston City Hospital (Reid, W. D.: The Heart in Pernicious Anemia, THE JOURNAL, Feb. 24, 1926, p. 534). Harrison and Blalock do not present postmortem data.

I have quoted the statement which contains the assumption that the augmentation in the output of blood is largely dependent on increased work of the heart. However, it is well known that the cardiac output is not governed solely by the work of this organ but is directly proportional to the amount of blood returned to the right heart. In anemia and in other conditions of need, there come into operation compensatory mechanisms of the peripheral part of the circulation which together with the activity of the heart cause the blood to be circulated more rapidly (Fahr, G. E., and Ronzone, Ethel: Circulatory Compensation for Deficient Oxygen Carrying Capacity of the Blood in Severe Anemias, *Arch. Int. Med.* **29**:331 [March] 1922; Reid, W. D.: The Heart in Pernicious Anemia, quoted above, and Nerve Reflexes Affecting the Circulation, *Boston M. & S. J.* **192**:788 [April 23] 1925). It is a too limited conception of the physiologic attributes of the circulation to confine one's attention to the central pump, or heart.

2. Harrison and Blalock advise the administration of digitalis in anemia on what appears to be inadequate indication. Furthermore, if the effects of the anemia are being met by an increase in the cardiac output and the digitalis lessens this output, as Harrison and Blalock state, is it not possible that the action of the drug may hamper Nature's means of maintaining an adequate supply of oxygen to the tissue cells?

Digitalis is said by Harrison and Blalock to be a cardiac sedative, but this cannot be said to be generally accepted as its sole action. There has long been a belief by clinicians that foxglove increases the strength of the cardiac contractions, and recently Cohn and Stewart (Evidence that Digitalis Influences Contraction of the Heart in Man, *J. Clin. Investigation* **1**:97 1924) have offered some rather convincing proof of such action. The so-called sedative action is more apparent when digitalis slows the heart rate (i. e., that of the ventricles), which it does by blocking an excessive number of supraventricular stimuli, such as occur in auricular fibrillation, for example. When a normal rhythm is present, this slowing of the ventricular rate is slight or absent. The rate of the heart beats is not necessarily much accelerated in

anemias, being less than 100 a minute in fifteen of the series of twenty cases which I studied electrocardiographically (Reid, W. D.: The Heart in Pernicious Anemia, quoted above).

Digitalis has been administered by many in cases of severe anemia, but it can be asserted with confidence that this method of treatment has not established itself as valuable. Harrison and Blalock also write that they have pointed out in a previous paper that digitalis may be expected to do good if given early in pneumonia. These observers may entertain this belief, but such beneficial effect also cannot be said to be generally accepted, if one is familiar with the written opinions of those who critically studied the action of digitalis in pneumonia during the World War when the drug was employed as a routine procedure in this disease.

We are indebted to Harrison and Blalock for presenting figures of the amount, duration, etc., of the increase of the output of the heart in anemia, but I find it difficult to concur in their clinical application of their data.

WILLIAM D. REID, M.D., Boston.

THE NEED FOR REPORTING NEGATIVE RESULTS

To the Editor:—One of the things we practitioners sometimes neglect is the reporting of failures. In THE JOURNAL, Oct. 2, 1926, Dr. Richard L. Sutton, with proper scientific reserve, reported the treatment of six consecutive cases of warts with intramuscular injections of sulpharsphenamine. As a result of this communication, I venture to guess that not less than a hundred physicians, perhaps several hundred, injected sulpharsphenamine into patients with warts. Supposing that 99 per cent get negative results, what happens? Each of them gives up the method as a failure and does not say anything more about it, and the treatment remains on record as an undisputed success. Possibly 1 per cent who meet with success will communicate with Dr. Sutton, so that by and by he will have quite an impressive series of cases, comparable with the mercurochrome successes published in a recent number of THE JOURNAL.

To practice what I am preaching, let me now report that on November 30, I injected 0.4 Gm. of sulpharsphenamine (Squibb) into the left buttock of E. M. B., a girl, aged 18, who was at that date complaining of the presence of twenty-four warts distributed mostly over the hands and arms. At the present date there are twenty-eight warts, and evidence of regressive changes in the original twenty-four has not been seen.

J. ROSSLYN EARP, Dr.P.H.,
Yellow Springs, Ohio.

UTRICULOPLASTY

To the Editor:—In THE JOURNAL, November 27, p. 1819, I am credited with coining the word "Utriculoplasty." Not guilty! The name of the Newman operation I was describing and the one referred to by Dr. Channing W. Barrett, in his discussion of the same subject in the same issue, page 1820, is "Tracheloplasty," denoting plastic surgery of the uterine cervix.

It is designed not only to restore the contour and the function of this organ, but to remove such lesions as erosions, endocervicitis, cystic degenerations and fibroid and cicatricial tissues that too frequently lead to cancer through prolonged irritation.

Modern preventive medicine must be alert to recognize precancerous conditions and remove this menace of malignant growths so prevalent and disastrous to the childbearing woman.

H. P. NEWMAN, M.D., San Diego, Calif.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

PYREXIA AFTER NONSPECIFIC PROTEIN

To the Editor:—Will you please let me know what is the best way to produce pyrexia? What would be the best foreign protein to inject intravenously and in what doses, and how may any anaphylaxis be avoided in case several doses were administered? I have read articles appearing in the October 23 and November 6 issues, pages 1376, 1394 and 1587, and should be glad to learn more.

M.D., Brooklyn.

ANSWER.—The intravenous injection of typhoid vaccine, with an initial dosage of 50 millions, each subsequent dose increased by 100 millions, and given at four day intervals, is one of the most reliable means of producing fever. It is quite a drastic measure, and one should be sure that the patient's vital organs are sufficiently healthy to withstand the attacks of fever thus produced.

The intramuscular injection of milk, skimmed by centrifugalizing and sterilized by boiling in the water bath for ten minutes, has good pyrogenic properties without great toxicity. The usual dose is 5 cc., gradually increased to 10 cc., though in those who have a tendency to strong febrile reactions (the tuberculous or syphilitic patient), one should commence with small doses; e. g., 0.5 cc. of milk injected intragluteally. One should always wait until the reaction disappears, injecting therefore after three day intervals. The dose should always be so selected as to produce a moderate focal and general reaction. The average duration of treatment is about four weeks.

By spacing the injections sufficiently close together, say not more than a week or two apart, the development of anaphylaxis may usually be prevented.

DR. MUDD AND THE DEATH OF LINCOLN

To the Editor:—I wish to answer a statement that appeared in THE JOURNAL, November 20, p. 1762, in reference to my grandfather, Dr. Mudd.

In reply to Dr. Allen's question, you state among other things that it is generally believed that "he [Dr. Mudd] was not guiltless." I believe you are mistaken in this respect. On the contrary, it is generally known that he was innocent. I might bring forth many reasons and facts to prove that he was innocent, but it would make this too lengthy. Just a few points, however, may be mentioned.

1. Booth did not know where Dr. Mudd lived. He had passed his house about a mile before he was informed of the location of "a" physician.

2. What reason did Dr. Mudd have to believe that Booth would break his leg and need medical attention? People do not break their legs just to be allowed to stay overnight.

3. If an assassin came to a hospital and was treated for an accident occurring while killing some one, would the physician in charge be liable to life imprisonment?

4. Would Dr. Mudd be liable to life imprisonment because he was opposed to the Washington government (provided he was)? On that score, every Southerner who has survived the Civil War should be in prison. They never proved that Dr. Mudd desired that President Lincoln should be killed.

5. Many of Booth's most intimate accomplices knew nothing of his intention to kill Lincoln.

6. The main evidence against Dr. Mudd was given by a negro, one who would be opposed to any slaveholder; and by another man who afterward became insane.

7. One man served seven or eight years in prison for this affair before it was discovered that he had absolutely nothing—not even indirectly—to do with it.

RICHARD D. MUDD, M.D., Detroit.

KLORON

To the Editor:—Do you know anything of "Kloron"? The chief claim of the manufacturers is stability—much greater than that of "Chlorazene." I would appreciate any information that you can give me. I note that it is being chiefly advertised to the public and the formula is apparently withheld.

LOUIS C. AGER, M.D., Cincinnati.

ANSWER.—So far as we know, the J. I. Holcomb Manufacturing Company, Indianapolis, has never declared the identity of the ingredients of their "Kloron" tablets. Qualitative tests made in the A. M. A. Chemical Laboratory indicated that it is sodium paratoluenesulphonchloramide, known under the

official name of Chloramine-U. S. P. The claims made for the product are typical of the extravagant exploitation of official products by the "patent medicine" route. Dr. Ager says that "the chief claim of the manufacturers is stability--much greater than that of Chlorazene." As Chlorazene is merely a proprietary name for Chloramine-U. S. P., it is evident that this statement is misleading.

DIFFICULTY IN COMPOUNDING

To the Editor:—For some time I have been writing a prescription for the relief of hemorrhoids as follows:

	Gm. or Cc.
Phenolis	6
Tinct. opii	4
Acidi tannic	8
Petrolat. alb., q. s.	ad 30

M. et Ft. Ungt.

The pharmacy now compounding this prescription is having a great deal of trouble on account of the mixture gumming up.

The method followed has been first to add the phenol to the petrolatum, then the tannic acid and lastly the tincture of opium; but when this is done it always gums up. If you will please send me a discussion on this and suggest the best way to compound it, I will greatly appreciate it.

J. H. SMITH, M.D., Victorville, Calif.

ANSWER.—The A. M. A. Chemical Laboratory reports that there is too much aqueous liquid (tincture of opium) for quick absorption by the amount of petrolatum specified (according to W. L. Scoville, 5 to 10 parts of water may be incorporated in 100 parts of petrolatum), so that a complete mixture cannot be made readily. On the other hand, with a sufficient amount of trituration, this mixture can be made to yield a smooth ointment.

The Laboratory reports that a more elegant preparation may be prepared if an equivalent amount of powdered opium is substituted for the tincture. The following procedure might be employed:

The tannic acid is triturated with about one half of the petrolatum; to the remaining portion of petrolatum, phenol (carbolic acid) is added, followed by powdered opium; then gradually the former is incorporated with the latter and mixed thoroughly. The use of yellow petrolatum will give a more uniform and deeper color to the finished product.

CALCIUM CHLORIDE INTRAVENOUSLY

To the Editor:—We have apparently had more reaction following the use of calcium chloride intravenously than we should. For example, we gave thirteen intravenous injections this morning, from three of which resulted quite a rise of temperature within two hours. It is only within recent months that we have had this experience. Can you offer us any helpful information?

J. D. RILEY, M.D., El Paso, Texas.

ANSWER.—Intravenous injections of calcium chloride are usually quite well borne, with the exception of a sudden and fleeting sensation of heat pervading the entire body that occurs often. The possible causes for febrile reactions after intravenous injections are quite numerous, ranging from the presence of traces of bacterial poisons or metallic impurities ("Wasserschaden") to unsuitable p_H concentration or osmotic tension. It might be difficult to determine the reason for the excessive frequency of febrile reactions in a particular lot of ampules. Another lot, even from the same manufacturer, might give more satisfactory results.

JEWELERS' ROUGE

To the Editor:—What information have you concerning the chemical composition of jewelers' rouge and tripoli?

FRANK C. COMBES, JR., M.D., New York.

ANSWER.—Jewelers' rouge (colcothar, crocus martis), the rouge used by watchmakers and jewelers, is essentially ferric oxide, Fe_2O_3. It may be obtained in several ways: (*a*) by calcining ferrous sulphate or oxalate; (*b*) by dehydrating ferric hydroxide, or (*c*) as a by-product of certain industries. Most of the material is a residue obtained in the manufacture of sulphuric acid according to the Nordhausen process by distillation of ferrous sulphate; it is known as colcothar, and is largely used as a pigment. On account of the absence of grit, it is used as a polishing rouge; the portions that are scarlet or red, i. e., those which have not been strongly heated, are preferred for glass and jewelry polishing, while the more strongly heated portions, which have a bluish tint, are employed under the name crocus martis for polishing such metals as steel. Stick rouge as used by the jewelers is presumed to be made with paraffin as the cementing agent, as little being used as will hold the rouge firmly together. Tripoli (kieselguhr, infusorial earth) is a calcined product obtained from white or grayish pulverulent material of low specific gravity, consisting chiefly of the minute silicious shields of diatomaceae. It varies considerably in composition, containing silica, from 70 to 80 per cent; water and organic matter, from 10 to 20 per cent, together with small quantities of aluminum, ferric oxide, calcium oxide, etc. The silica is largely in the form of opal (hydrated silica). Purified diatomaceous earth is official in the U. S. Pharmacopeia X as Terra Silicea Purificata.

HEMOPHILIA

To the Editor:—Recently a discussion pertaining to hemophilia came up and at that time some asserted, quite emphatically, too, that hemophilia is a disease exclusively of males which is transmitted through the female. Is it true that cases occur only in males and never in females? Some cases of hemophilia have been reported in females, but it has been asserted that those cases were not hemophilia but in reality chronic purpura. I would appreciate your giving me the opinion at present held in this matter. Those who hold that it never occurs in females have in substantiation of their view such systems of medicine as Osler and Tice; but in face of this, some claim its existence in females even in as high a rate as one in fifteen. Kindly omit my name. M.D., New York.

ANSWER.—The uncertainty that exists in our correspondent's mind is reflected in the literature. G. L. Gulland and A. Goodall (The Blood, ed. 3, Edinburgh, W. Green and Son, Limited, 1925, p. 264) make a definite statement as follows:

> The tendency is generally found in the male sex, and doubt has been expressed whether true hemophilia ever occurs in the female. The condition may, however, be definitely stated to occur in females, and one female case has come under our own notice. Frankel and Bohm publish a table of 151 cases recorded as occurring in women.

On the other hand, H. G. Wells (Chemical Pathology, ed. 5, Philadelphia, W. B. Saunders Company, 1925, p. 322) seems inclined to follow A. F. Hess (The Blood and the Blood Vessels in Hemophilia and Other Hemorrhagic Diseases, *Arch. Int. Med.* **17**:203 [Feb.] 1916). Hess writes,

> In almost all studies of hemophilia, particular emphasis has been laid on its striking incidence—the fact that it occurs solely in the male and that it is invariably hereditary in origin. Although we have not encountered any case which absolutely controverts these premises, it seems inadvisable and unwarranted to establish such hard and fast limitations as have been set down in the comprehensive monograph on hemophilia recently issued by the Eugenics Laboratory. It should be borne in mind that in other diseases confined to the male sex, diseases which have the advantage of being susceptible to more ready diagnosis, such as color blindness and pseudomuscular dystrophy, well authenticated cases have been described in the female.
>
> There is an hereditary purpura as well as hereditary hemophilia. This type of purpura should be more generally recognized, so that these cases will not, on account of their hereditary history, continue to be regarded as hemophilia.
>
> The male member of a family may be a bleeder of the hemophiliac type and the female of the purpuric type.

It would be well to consult the bibliography given by H. G. Wells.

SODIUM BROMIDE INTRAVENOUSLY

To the Editor:—Will you please send me any information you may have regarding the intravenous administration of sodium bromide? At times, I have wished for a bromide preparation which could be given in spite of gastric distress. M.D., Ohio.

ANSWER.—Sodium bromide may be injected intravenously, provided the liability of such an injection causing colloidoclastic shock is reckoned with. This might even be desirable when nonspecific immunization or other kind of parenteral alterative therapy is aimed at in addition to the bromide action. It might have to be taken as an unavoidable risk, when the bromide action is required and other channels for administration are not available. It seems, however, that mere "gastric distress" would call for better dilution of the dose, as with a tumblerful of milk, or for introduction by way of the rectum, rather than intravenous injection.

ANIMAL EXPERIMENTATION NOT FORBIDDEN IN MEXICO

To the Editor:—A recent newspaper item quoted an antivivisection speaker as saying that the government of Mexico had first refused to permit the use of government funds for animal experimentation and later forbidden animal experimentation altogether. Is this true?

———, Chicago.

ANSWER.—The Director General, Chief of the National Department of Health of the Republic of Mexico, states that in Mexico vivisection and related experiments are not prohibited.

SEQUELAE OF ENCEPHALITIS

To the Editor:—What are the end-results or symptoms to be expected toward the terminal stages of Parkinson's syndrome of epidemic encephalitis? Just what may be expected to cause death other than intercurrent diseases? Please withhold my name.

M.D., Ohio.

ANSWER.—Aside from intercurrent infections, causes of death in encephalitic parkinsonism are progressive cachexia and acute exacerbations of the encephalitic process. In the first monograph written on late forms of encephalitis, Gabrielle Lévy (Contribution a l'étude des manifestations tardives de l'encéphalite épidémique, Paris, 1922) in her classification describes a cachectic form, characterized by preponderance of rigidity over tremor, intense salivation, early tendency to difficulties with mastication and speech, weakened retropulsion and emaciation. Toward the end, edema, sphincter disturbance, decay of teeth, arthritides and bed sores are prone to occur. Hyperpyrexia is usually the terminal event. Hence, the termination is similar to that often seen in general paralysis, which is a chronic syphilitic encephalitis. The proved fact that encephalitic parkinsonism means active chronic encephalitis, and not a mere "sequel," makes it easier to understand why it sometimes is the direct cause of death.

LEAD POISONING

To the Editor:—I am preparing a paper on lead poisoning and its possible prevention, and as opinions vary to such an extent, I am writing to you. If you will answer the following question, basing your answer on the consensus of opinion, it will help me greatly in the preparation of my paper: To what extent are the various oxides of lead soluble in the human gastric juices?

M.D., Ohio.

ANSWER.—All oxides of lead are readily soluble in acids and there seems not to be any difference between them in this regard. Experiments with human gastric juice have not been made, but many have been performed with physiologic hydrochloric acid solution (0.2 per cent). Thus Thorpe, chemist attached to the factory inspection department of the British home office, has repeatedly tested lead oxide glazes with 0.25 per cent hydrochloric acid and has obtained solubilities from 95.6 to 98.3 per cent (Lead Compounds in Pottery, Report to Home Office, London, 1899, p. 27).

A similar study was made by Karl Beck and P. Stegmüller, who found that litharge and red lead both dissolve completely in 100 cc. of tenth-normal hydrochloric acid when 0.1 Gm. of the oxide is taken (Ueber die Löslichkeit von Bleisulfat, *Arb. a. d. k. Gsndhtsamte.* **34**:479, 1910).

Fairhall has also written an article on the solubility of lead oxides in blood serum. He used horse serum and found that lead oxides are far more soluble in it than in water. In the latter, the solubility, in grams per liter, is only 0.044, while in horse serum it is 1.152. He suggests that this may explain the rapid absorption of lead fumes and oxide dust from the respiratory tract.

BLOOD SUGAR IN DIABETES

To the Editor:—1. What is the significance of a high blood sugar (more than 160 mg. per hundred cubic centimeters of blood) in a diabetic patient whose urine is sugar free? 2. Do you consider it necessary to hold the blood sugar within normal limits as well as to keep the urine sugar free? Is it better practice to do this or rather to ignore the blood sugar condition and depend largely on the urinary data in determining the carbohydrate tolerance? The especial patient I have in mind does not have glycosuria when the blood sugar has mounted to 200 mg. per hundred cubic centimeters of blood without breakfast. Reduction in the amount of carbohydrates, of course, brings the amount of sugar down.

L. T. STONEBURNER, JR., M.D., Richmond, Va.

ANSWER.—1. A high blood sugar with glycosuria must be interpreted with considerable care. It frequently has more to do with the chronicity of the disease than any other element. In other words, patients with arteriosclerosis are much more apt to have high blood sugar without sugar in the urine than are young ones.

2. In order to render the blood sugar of some patients normal, it is necessary to use either excessively small amounts of food or excessively large doses of insulin. The patient has to be individualized, and if it is found that a moderate reduction of carbohydrate intake results in freeing the urine of sugar but does not reduce the blood sugar sufficiently, then judgment must be exercised in lowering the diet. The clinical reaction of the patient is just as important a criterion of success as are the laboratory observations. In insulin cases it must be remembered that the highest blood sugar obtainable is the early morning starvation level when the last dose of insulin given the day before has practically worn off.

Medical Education, Registration and Hospital Service

COMING EXAMINATIONS

ALABAMA: Montgomery, Jan. 11-14. Chairman, Dr. S. W. Welch, Montgomery.

CALIFORNIA: Los Angeles, Jan. 31 to Feb. 3. Sec., Dr. Charles B. Pinkham, 906 Forum Bldg., Sacramento.

CONNECTICUT: State Board of Healing Arts (prerequisite to examination), Feb. 12. Sec., Dr. Charles M. Bakewell, Box 1895, Yale Station, New Haven.

DISTRICT OF COLUMBIA: Jan. 11. Sec., Dr. Edgar P. Copeland, Suite 110, 1801 Eye St., N. W. Washington.

HAWAII: Honolulu, Jan. 10-13. Sec., Dr. A. L. Davis, 1254 Emma St., Honolulu.

ILLINOIS: Chicago, Jan. 11-13. Supt. of Registration, Mr. V. C. Michels, Springfield.

INDIANA: Indianapolis, Jan. 11. Sec., Dr. William T. Gott, Crawfordsville.

KANSAS: Topeka, Feb. 8. Sec., Dr. Albert S. Ross, Sabetha.

NEW YORK: Albany, Buffalo, New York, Syracuse, Jan. 24-27. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, Albany.

PENNSYLVANIA: Philadelphia, Jan. 25-29. Mr. C. D. Koch, Director, Professional Education Bureau, Harrisburg.

PORTO RICO: San Juan, March 1. Sec., Dr. D. Biascoechea, 3 Allen Street, Box 804, San Juan.

SOUTH DAKOTA: Pierre, Jan. 18. Director, Dr. H. R. Kenaston, Bonesteel.

VERMONT: Burlington, Feb. 8-10. Sec., Dr. W. Scott Nay, Underhill.

WISCONSIN: Madison, Jan. 11. Sec., Dr. Robert E. Flynn, 315 State Bank Bldg., La Crosse.

WYOMING: Cheyenne, Feb. 7-8. Sec., Dr. G. M. Anderson, Cheyenne.

Michigan October Examination

Dr. Guy L. Connor, secretary of the Michigan Board of Registration in Medicine, reports the written examination held at Lansing, Oct. 12-14, 1926. The examination covered 14 subjects and included 100 questions. An average of 75 per cent was required to pass. Sixty candidates, including 23 chiropractors and 3 chiropodists, were examined, of whom 15 chiropractors failed. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
Georgetown University School of Medicine		(1926)	86.4
Northwestern University Medical School	(1926)* 82, 82.7	(1926)	83.7,
Rush Medical College		(1926)*	83.2
Johns Hopkins University Medical Department		(1924)	89.3
Columbia University College of Phys. and Surgs		(1925)	87.1
Cornell University Medical College		(1923)	84.7
University of Manitoba Faculty of Medicine		(1926)	84.6
McGill University Faculty of Medicine	(1920) 81.8, (1922) 84.6, (1924) 83.2	(1919)	82,
University of Toronto Faculty of Medicine	(1923) 79.7, 82.1, (1924) 83.1, 84.4, 85.7, (1925) 82.5, 85.3, (1926) 83.2, 90.2	(1916)	80.4,
University of Western Ontario	(1924) 81.7, 86.5, (1925) 82.1, 82.9, (1926) 82.3	(1921)	80.2,
Western University, Faculty of Medicine		(1909)	86.1
University of Buenos Aires, Argentina		(1919)	83.3
University of Budapest, Hungary		(1891)†	80.5
University of Palermo, Italy	(1904) 79.5, (1920)†		75

* These candidates have finished their medical course and will receive their M.D. degrees on completion of a year's internship in a hospital.

† Verification of graduation in process.

Arizona October Examination

Dr. W. O. Sweek, secretary of the Arizona Board of Medical Examiners, reports the written examination held at Phoenix, Oct. 4-5, 1926. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Three candidates were examined, all of whom passed. Ten candidates were licensed by reciprocity and 1 by endorsement of his credentials. The following colleges were represented:

College	PASSED	Year Grad.	Per Cent
College of Medical Evangelists		(1925)	85.2
State University of Iowa College of Medicine		(1924)	89.5
University of Michigan Medical School		(1925)	90.6

College	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Bennett College of Eclectic Medicine and Surgery		(1908)	Illinois
University of Illinois College of Medicine		(1918)	Iowa
Medical College of Indiana		(1900)	Texas
University of Minnesota Medical School		(1911)	California
St. Louis College of Physcians and Surgeons		(1908)	New Mexico
University Medical College of Kansas City		(1910)	Oklahoma
	(1911) Missouri		

Columbia University College of Phys. and Surgs.	(1898)	New York
Eclectic Medical Institute, Cincinnati	(1896)	Missouri
University College of Medicine	(1903)	Virginia

College	ENDORSEMENT OF CREDENTIALS	Year Grad.	Endorsement with
Rush Medical College		(1925)	N. B. M. Ex.

Book Notices

ANATOMY OF THE WOOD RAT. Comparative Anatomy of the Subgenera of the American Wood Rat (Genus Neotoma). By A. Brazier Howell, U. S. Biological Survey. Number 1—Monographs of the American Society of Mammalogists. Cloth. Price, $5. Pp. 225, with illustrations. Baltimore: Williams & Wilkins Company, 1926.

This is the first of a proposed series of studies on the anatomy of American mammals, undertaken to furnish a basis for the investigation of convergence of diverse mammals toward types specialized for certain modes of life. The object of this particular book is stated by the author to be the presentation of certain portions of the gross anatomy of a medium-sized, generalized cricetine rodent. The wood rat *Homodontomys*, of somewhat arboreal habits, is taken as the basic type, and with it are compared representatives of two other genera, *Neotoma*, living on the ground in semiarid regions, and *Teonoma*, found on rock slides in high mountain country. The myology and osteology of these three forms are considered in considerable detail; of the other systems, only the digestive and urogenital are presented. The style is simple and plain; the illustrations are clear and conveniently labeled. In a final chapter there is considerable discussion of the probable functions of the muscles of mammals, with a table. Variations in muscles and skeleton in the three subgenera under discussion are presented, and from a consideration of these variations the author concludes that some of the subgeneric myologic and osteologic differences are purely of phylogenetic origin, while others are correlated with the habits and habitats of each form. The book appears to fulfil the intentions of the author, although unsuitable for class or general use owing to the omission of the circulatory and nervous systems. Such studies as this will eventually be of great aid in evaluating taxonomic differences and relationships.

EPILEPSIE: Vergleichende Pathogenese. Erscheinungen. Behandlung. Von Dr. L. J. J. Muskens, Praktischer Arzt in Amsterdam. Heft 47. Monographien aus dem Gesamtgebiete der Neurologie und Psychiatrie. Herausgegeben von O. Foerster und K. Wilmanns. Paper. Price, 30 marks. Pp. 395, with 52 illustrations. Berlin: Julius Springer, 1926.

The author states that his work is based on experimental physiologico-anatomic studies undertaken from 1899 to 1916, and on clinical work carried on from 1900 to 1923. The first three parts, experimental studies, were done at intervals of five years each, while the remaining parts of the book were completed without interruptions. This is his excuse for certain shortcomings, such as frequent repetitions and a slight unevenness in the sequence of several chapters. Because of its originality, the experimental portion, comprising 166 pages, or about one half of the book, needs especial mention. In this the author attempts, by experimental methods, to reproduce as nearly as possible the phenomena observed in human "genuine epilepsy." He measures and graphically describes a type of spasm which he calls "myoclonic," produced in animals by various irritants; then the animal is killed and its nervous tissues are examined. The author is of opinion that he has proved experimentally that it is possible to produce, by chemical, electrical and mechanical means, a type of myoclonic convulsive movement, both local and general, similar forms of which are not infrequently encountered among human epileptics. He believes that the myoclonic spasm in animals is of reflex origin and a so-called after-discharge. As it was necessary to heighten the reflex excitability of his experimental animals by the administration of certain drugs, such as camphor monobromate and absinthe, the experimental method could not be applied to man. These drugged animals showed reflex excitability in the following order: Spasms occurred on cutaneous stimulation and, secondly, by loud noises; spontaneous jerks appeared; later, a series of muscular contractions, and, lastly, epileptiform convulsions made their appearance. He formulates the hypothesis that myoclonic attacks are a special type of reflex after-discharge, and, as we ascend the scale of animal life, this reflex becomes more perfect and useful. Its purpose is to remove toxic substances from the circulation. For its complete performance the integrity of the pyramidal tracts is required, though injury to these tracts only slightly interferes with the production of the myoclonic reflex. Injury to cortical areas other than the motor regions causes either abolition or reduction of reflex excitability. The author places the seat of the myoclonic reflex in the pons-medulla, believing that the motor cortex merely facilitates its production. Further, he thinks that epilepsy in the higher animals is a protective mechanism against the taking of poison. According to the author, the equivalent of experimental myoclonic epilepsy is found in human epilepsy and should find its place in its symptomatology. Far from considering it a rare form of epilepsy, he sees in it the prototype of "genuine epilepsy." This volume is essentially a summary of his investigations, and he is convinced that he has thus brought experimental proof to the oft-expressed opinion that the motor cortex is not the most important factor in the production of epilepsy, but that the pons, medulla and formatio reticularis have an equally important share in its production. In spite of the fact that this piece of research was well done, the reader is still left in doubt as to its direct applicability to the pathology of human epilepsy. The practical portion of the book follows the orthodox lines in classification, prognosis and treatment. The author appears to be thoroughly familiar with his subject, and speaks from a large clinical experience of more than a thousand cases of epilepsy. The chapter dealing with the psychic phenomena preceding and following the epileptic seizure is especially good; likewise the chapters on traumatic and focal epilepsy. Commendable also is the report on a number of operations for epilepsy. Under treatment, too much space has been given to general hygiene and not enough to the details of the administration of drugs—a subject of supreme importance to the medical reader. Pathologic anatomy—not a part of the book's title—has received scant presentation. The experimental portion constitutes a real contribution to the literature on epilepsy, while the clinical half, written in popular language, should be helpful to the general practitioner.

HUNTER TOD'S DISEASES OF THE EAR. Revised by George C. Cathcart, M.A., M.D., Consulting Surgeon to The Throat Hospital, Golden Square. Second edition. Cloth. Price, $3.50. Pp. 333, with illustrations. New York: Oxford University Press, 1926.

This presents a good example of a field admirably dealt with by the English. They excel, in medicine, at least, in the writing of concise works, crammed full of useful information and with nonessentials largely omitted. For a book of this size, the number and excellence of the illustrations is noteworthy. There are twelve color drawings of the tympanic membrane, for instance, which might well grace a larger and more ambitious text. Embryology, anatomy and symptomatology are briefly but accurately discussed, and the chapters on treatment are modern, conservative and free from prevailing fads.

ARCHIV UND ATLAS DER NORMALEN UND PATHOLOGISCHEN ANATOMIE IN TYPISCHEN RÖNTGENBILDERN. Die Harnorgane im Röntgenbild. Von Professor Dr. Eugen Joseph. Erganzungsband 37. Fortschritte aus dem Gebiete der Röntgenstrahlen. Herausgeber, Prof. Dr. Grashey. Paper. Price, 31.50 marks. Pp. 58, with illustrations. Leipsic: George Thieme, 1926.

This is a welcome addition to the subject of the application of radiography and especially of pyelography in the diagnosis of disease of the urinary tract. It is seldom that so much valuable information is so tersely presented. The book fills a gap because it is impossible in the ordinary textbooks or systems of urology to devote much space to the reprodnction of films representing every possible phase of normal and pathologic conditions in this special field. An excellent and detailed description of the preparation of the patient is followed by a chapter on the various diagnostic methods which supplement plain radiography. The superiority of pyelography and similar procedures for filling the ureter, bladder and urethra with opaque solutions are clearly shown. Stress is

laid on the importance of familiarity with normal conditions, and a number of pyelograms are shown to illustrate the many variations of the normal renal pelvis. One finds, in addition, remarkably good reproductions on heavy coated paper of nearly every condition which radiography (supplemented by pyelography) has made recognizable in both the upper and the lower urinary tract. The only criticism is that there should be more coordination of the excellent text and this abundance of illustrations. The legends of the latter are given in English as well as German. The calling of attention to the importance of peristaltic spasmodic movements in causing distortions and filling defects in both pyelograms and ureterograms seems especially timely. The book will be a valuable one for the urologist as well as the general surgeon and radiologist to refer to in attempting to interpret films after roentgenography of the urinary tract.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

REMINGTON'S PRACTICE OF PHARMACY. A Treatise on the Making, Standardizing and Dispensing of Official, Unofficial and Extemporaneous Pharmaceutical Preparations, with Descriptions of Medicinal Substances, Their Properties, Uses, and Doses and Such Other Professional Service in Connection with Community Health as the Pharmacist may be called Upon to Render. Intended for the Use of Pharmacists and Physicians and as a Textbook for Students. Seventh edition. By E. Fullerton Cook, P.D., Ph.M., Chairman of the Committee of Revision of the Pharmacopœia of the United States of America, and Charles H. LaWall, Ph.M., Pharm.D., Sc. D., Dean of Pharmacy, and Professor of Theory and Practice of Pharmacy of the Philadelphia College of Pharmacy and Science. Cloth. Price, $10. Pp. 2090, with illustrations. Philadelphia: J. B. Lippincott Company, 1926.

The pharmacists' *vade mecum.*

PEDIATRIC NURSING INCLUDING THE NURSING CARE OF THE WELL INFANT AND CHILD. By Gladys Sellew, M.A., B.S., R.N., Assistant Professor of Nursing Education, School of Nursing, Western Reserve University. Cloth. Price, $2.50 net. Pp. 456, with illustrations. Philadelphia: W. B. Saunders Company, 1926.

All that a nurse might know and more than most doctors know about the nursing care of the infant.

READINGS IN ABNORMAL PSYCHOLOGY AND MENTAL HYGIENE. Edited by W. S. Taylor, Professor of Psychology in Smith College. With an Introduction by Joseph Jastrow, Professor of Psychology in the University of Wisconsin. Cloth. Price, $4. Pp. 789. New York: D. Appleton & Company, 1926.

Well selected quotations covering the whole field of mental hygiene and psychotherapy.

CLINICAL SURGICAL DIAGNOSIS: For Students and Practitioners. By F. de Quervain, Professor of Surgery and Director of the Surgical Clinic at the University of Berne. Translated by J. Snowman, M.D. Fourth English edition. Cloth. Price, $14. Pp. 937, with 757 illustrations. New York: William Wood & Company, 1926.

New English edition with revisions based on two new German editions.

HUMAN PATHOLOGY: A Textbook. By Howard T. Karsner, M.D., Professor of Pathology, School of Medicine, Western Reserve University. With an Introduction by Simon Flexner, M.D. Cloth. Price, $10. Pp. 980, with 463 illustrations. Philadelphia: J. B. Lippincott Company, 1926.

Practical textbook well written, well illustrated and up to date.

PRINCIPLES AND PRACTICE OF CHEMOTHERAPY: With Special Reference to the Specific and General Treatment of Syphilis. By John A. Kolmer, M.D., Dr.P.H., D.Sc. (Hon.), Professor of Pathology and Bacteriology in the Graduate School of Medicine of the University of Pennsylvania. Cloth. Price, $12 net. Pp. 1106, with illustrations. Philadelphia: W. B. Saunders Company, 1926.

Massive survey of newest information in a progressive field.

CHIRURGIE DE L'ESTOMAC. (PREMIÈRE PARTIE). Par Henri Hartmann, professeur de clinique chirurgicale. Paper. Price, $1.60. Pp. 336, with illustrations. Paris: Masson & Cie, 1926.

A SHORT HISTORY OF MARRIAGE. By Edward Westermarck, Ph.D., Hon. LL.D., Martin White Professor of Sociology in the University of London. Cloth. Price, $3.50. Pp. 327. New York: Macmillan Company, 1926.

A revelation of racial points of view in setting up the family.

PRINCIPLES OF HOME NURSING. A Text-Book for College Students. By Emma Louise Mohs, R.N., A.B., School Nurse, Department of Education, Kirksville, Missouri. Second edition. Cloth. Price, $2 net. Pp. 307, with 123 illustrations. Philadelphia: W. B. Saunders Company, 1926.

A collection of helpful hints.

THE REPRODUCTION OF LIFE. A Handbook of the Science of Reproduction in Nature and Man. By A. J. Cokkinis, F.R.C.S., M.B., B.S. Cloth. Price, $3.50. Pp. 287, with illustrations. New York: William Wood & Company, 1926

Technical handbook of embryology.

AN INTRODUCTION TO BIOLOGY. By Alfred C. Kinsey, Sc.D., Associate Professor of Zoology, Indiana University. Cloth. Price, $2.50. Pp. 558, 430 illustrations. Philadelphia: J. B. Lippincott Company, 1926.

High school biology attractively presented.

A SOUND ECONOMIC BASIS FOR SCHOOLS OF NURSING, AND OTHER ADDRESSES. By Mary Adelaide Nutting, R.N., M.A. Cloth. Price, $2.50. Pp. 327. New York: G. P. Putnam's Sons, 1926.

Essays revealing changing ideals in nursing education.

MY OWN STORY. By Fremont Older, Editor, the San Francisco Call. Cloth. Price, $2.50. Pp. 340. New York: Macmillan Company, 1926.

Autobiography of a famous fighting editor.

CLASSIFICATION OF SOCIAL AGENCIES BY FUNCTION IN THE CITY OF NEW YORK. Prepared for the Use of the Welfare Council in the Organization of Its Sections and Divisions. By Edith Shatto King. Assisted by Augusta Frear, Bureau of Advice and Information of the Charity Organization Society. Paper. Price, 50 cents. Pp. 120. New York: Welfare Council of New York City, 1926.

INDEX OF THE COLLECTED PAPERS OF THE MAYO CLINIC AND THE MAYO FOUNDATION 1884 TO 1925. Cloth. Price, $5 net. Pp. 227. Philadelphia: W. B. Saunders Company, 1926.

Medicolegal

Death of Insured Physician from Inhaling Chloroform

(Brown v. Continental Casualty Co. (La.), 108 So. R. 464)

The Supreme Court of Louisiana says that this was a suit on an insurance policy which provided for $1,000 indemnity for loss of life by accidental means. The plaintiff was the widow of the insured, who was a physician and who died from inhaling too much chloroform, which he used to relieve headache and insomina caused by a disturbance of the stomach that was in some measure chronic. The court does not think that the right to recover under the policy was forfeited by the failure of the insured to disclose in his application for insurance that he suffered from a disturbance of the stomach and the consequent headaches and insomnia. The policy was issued without a medical examination. The only ailments inquired about specifically were the serious ones specified in the application blank; i. e., tuberculosis, paralysis, rheumatism, hernia and appendicitis, the application reading: "Except as herein stated, I have not had nor am I now suffering from tuberculosis, paralysis, rheumatism, hernia, appendicitis, nor any chronic or periodic mental or physical ailment or disease." If the ailments which the applicant had—stomach trouble and consequent headaches and insomnia—were not important enough for the company or its agent to inquire about, when the company and its agent had ample opportunity to inquire about them, then, by the terms of the Louisiana act of 1908, and in the absence of any allegation of fraud, it must be presumed that the company waived its right to claim a forfeiture of the policy on the ground that the insured did not make true and full answers in his application, as to his health, in that respect. Moreover, this court does not believe that if the applicant had stated that he had those ailments the company would have thought that it materially affected the risk, with regard to the accident indemnity. It was true that the stomach trouble and

consequent headaches and insomnia were the remote causes that led to the accidental death of the insured, but that was only a coincidence, and an extraordinary one at that.

The company's second defense, that, under a policy providing indemnity for loss of life "by accidental means," the company is not liable for an accidental death, unless the means which caused the death was unintentional, seems to be sustained by very high authority in other states, but this court does not think that the defense was well founded here. The court does not believe that the doctrine making a distinction between "accidental death or injury" and "death or injury by accidental means" means that, under a policy of insurance against death or injury by accidental means, the insurance company is not liable for an accidental death or injury resulting from a voluntary act in which the insured did not intend or anticipate a fatal or injurious result. In this case there was the element of unexpectedness, that the insured inhaled more chloroform than he expected to inhale. The means or cause of his death was not that he intentionally inhaled chloroform, which he had done many times before, but that he unintentionally inhaled too much chloroform. Almost every accidental death or injury is the result of some voluntary act of the person killed or injured, without intending or expecting death or injury.

The company's contention that chloroform is an intoxicant, and that the insured therefore died while under the influence of an intoxicant, was rather far-fetched. Such an idea would not have come to the mind of any one reading the policy, before the accident happened. The clause in an insurance policy saying that it does not cover death resulting while under the influence of an intoxicant has only a commonplace meaning. It means under the influence of intoxicating liquor. To this court it would seem as appropriate to call whisky an anesthetic as to call chloroform an intoxicant.

Nor does this court deem a good defense one which rested on a clause in the policy saying that it did not cover loss resulting from injury sustained by the insured by reason of voluntary exposure to unnecessary danger. The insured in this instance was a competent physician, and his judgment was that the use of chloroform to relieve his suffering was not an unnecessary danger. The case was the same as if some other competent physician had prescribed or advised him to use chloroform. To inhale chloroform, administered or prescribed by a practicing physician, is not a "voluntary exposure to unnecessary danger," in the meaning of such a clause in an insurance policy.

This court affirms the ruling of the district court that the plaintiff was entitled to recover; but she was not entitled to double indemnity or an attorney's fee for prosecuting the suit. She was entitled only to the principal sum, $1,000, with legal interest commencing thirty days after she filed proof of loss.

Unlawful Detention in Sanatorium of One Not Insane

(Crawford v. Brown et al. (Ill.), 151 N. E. R. 911)

The Supreme Court of Illinois, in reversing a judgment that was rendered for the defendants and in remanding the cause for a new trial, says that the plaintiff sued to recover damages for being unlawfully restrained of her liberty and detained in a sanatorium. The defendants were the physician who owned and conducted the sanatorium, under a state license, and a trained nurse employed for the plaintiff's husband, who was at the time ill with typhoid. The defense of justification relied on was embodied in this instruction given to the jury:

> The court instructs you that not every restraint of a person is illegal, and if you believe from the evidence that the plaintiff, by reason of disease or her mental condition, was incapable of subjecting her actions to the control of reason, and if you further believe from the evidence that in her then condition she might have injured herself or others, then it was lawful for her family, or those who were responsible for her, to restrain her of her liberty for a reasonable time for the purpose of treatment. This they could do in her own home or by sending her to an institution where she could receive such treatment.

The supreme court is convinced from the proof that the plaintiff was at no time insane or dangerous to herself or others. She was worried about her husband's illness and nursed him herself until a trained nurse was employed. She did not approve all the conduct and actions of the nurse, and evidently refused to leave her sick husband entirely to the care of the nurse and refrain from going into his room to see him. In the opinion of the court the plaintiff's attitude toward the nurse was not unnatural for a wife, but the nurse appeared to have wanted her removed—not because she was insane and threatened violence toward any one in the family or herself, but because she thought her presence in the house was objectionable under the circumstances. A physician called to see the plaintiff apparently agreed with the nurse, and arrangements were made with the sanatorium to take the plaintiff there after morphine had been forcibly administered to her. It is not a matter for surprise that when she found where she was she begged to be allowed to go home and became excited when she was forcibly detained in the institution, which the defendant physician testified was "mainly for people of unsound mind." Her son and daughter were led to consent to the taking to the sanatorium.

The Illinois statute does not authorize members of the family, physicians and nurses to commit a person to an institution for the insane without the authority of a judgment of court. Temporary detention or restraint of an alleged lunatic is permitted for not exceeding ten days, pending a judicial investigation, when the safety of the patient or others requires it. The instruction referred to, which the court gave at the request of the defendants, was not warranted by the statute or the evidence.

The weight of authority appears to be that an insane person may, without any adjudication, be lawfully restrained of his liberty when to not do so would endanger his own life or the life of others, but such right to restrain is limited to cases of actual insanity and immediate danger. Insanity which does not render the insane person dangerous to himself or others is not a lawful excuse for restraint without a judical proceeding. A private person who applies such restraint must act on facts, not suspicion or belief, and takes the responsibility of an error of judgment. Some cases hold that relatives of one who is insane may commit him without judicial proceedings if they act in good faith for the insane person's benefit, but it seems evident that in such cases the statute was different from the Illinois statute, under which only a court can adjudge one insane. Under the Illinois statute no insane person shall be restrained of his liberty unless he has been legally adjudged insane, except that temporary detention of an alleged lunatic may be permitted for a reasonable time, not exceeding ten days, pending a judicial investigation of his mental condition. By practically all the authorities it is held that such imprisonment or detention without an adjudication is authorized only when the condition of the person is such that restraint is necessary for the protection of the insane person or others from his violence. The fact that a person may be temporarily detained and placed under temporary restraint when conditions require it should not be expanded to authorize forcible detention and restraint of persons not actually insane or whose symptoms do not threaten with immediate danger themselves or others.

The evidence in this case failed to show any justification for committing the plaintiff to the sanatorium and forcibly keeping her there two weeks. The enjoyment of liberty is too precious to be denied one by individuals on their own responsibility, except in aggravated cases.

Society Proceedings

COMING MEETINGS

American Association for the Study of Goiter, Philadelphia, Jan. 31-Feb. 2. Dr. Kerwin Kinard, Bryant Building, Kansas City, Mo., Corresponding Secretary.

American College of Physicians, Cleveland, Feb. 21-25. Dr. G. M. Piersol, 1913 Spruce Street, Philadelphia, Secretary General.

American Society for the Control of Cancer, New York City, March 5. Dr. T. M. Debevoise, 26 Broadway, New York City, Secretary.

Pacific Coast Surgical Association, Del Monte, California, Feb. 25-26. Dr. E. L. Gilcreest, Fitzhugh Building, San Francisco, Secretary.

Sioux Valley Medical Association, Sioux City, Iowa, Jan. 18-19. Dr. R. F. Bellaire, Trimble Block, Sioux City, Secretary.

Tri-States Medical Association of Mississippi, Arkansas and Tennessee, Memphis, Tenn., Feb. 1-3. Dr. A. F. Cooper, Bank of Commerce Building, Memphis, Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in America for a period of three days. No foreign journals are available prior to 1921, nor domestic prior to 1923. Periodicals published by the American Medical Association are not available for lending, but may be supplied on order. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested).

Titles marked with an asterisk (*) are abstracted below.

Archives of Ophthalmology, New Rochelle, N. Y.

55: 533-627 (Nov.) 1926

Treatment of Glaucoma with Glaucosan and Aminoglaucosan. C. Hamburger, Berlin.—p. 533.

Simplified Tangent Screen with Suggestions on Field Taking. A. H. Thomasson, New York.—p. 545.

Blocking of Main Trunk of Facial Nerve in Cataract Operations. R. E. Wright, Madras, India.—p. 555.

Treatment of Bullous Keratitis. A. Knapp, New York.—p. 560.

Tubercular Iridocyclitis as Observed with Slit Lamp; Tuberculin Treatment. C. King, Cincinnati.—p. 563.

Light Sense in Early Glaucoma. G. S. Derby, J. H. Waite and E. B. Kirk, Boston.—p. 575.

Archives of Surgery, Chicago

13: 617-778 (Nov.) 1926

*Formation and Treatment of Fibro-Adenomas of Breast. G. L. Cheatle, London.—p. 617.

*Effect of Ligation of Pulmonary Artery of One Lung Without and With Resection of Phrenic Nerve. K. Schlaepfer, Milwaukee.—p. 623.

*Skin Triangle of Appendicitis. E. M. Livingston, New York.—p. 630.

Intrapelvic Ectopic Testis, Ectopia Vesicae, Cengenital Umbilical Hernia and Abnormal Gallbladder. H. A. Harris, St. Louis.—p. 644.

*Use of Fascia for Reenforcement of Relaxed Joints. G. E. Bennett, Baltimore.—p. 655.

Utilization of Skin-Muscle Pedicled Flap in Operation for Lung Abscess. E. F. Butler, Sayre, Pa.—p. 667.

Cervical Sympathectomy: Review of the Literature. W. B. Mosser, Philadelphia.—p. 677.

Extracranial Aneurysm of Internal Carotid Artery; Review of 103 Cases. N. Winslow, Baltimore.—p. 689.

Fundamental Principles of Treatment of Gastric and Duodenal Ulcers. E. Klein, New York.—p. 730.

Review of Urologic Surgery. A. J. Scholl, Los Angeles, and others. —p. 744.

Fibro-Adenoma of Breast.—Cheatle does not consider that any types of fibro-adenomas of the breast arise from so-called rests. He says they originate in parts of the gland that have been normal. The correct treatment of fibro-adenoma is to excise the affected segment of the breast that contains the tumor or tumors.

Ligation of Pulmonary Artery.—The late results following ligation of the left pulmonary artery in dogs, without and with simultaneous section of the phrenic nerve, are reported by Schlaepfer. Ligation of the pulmonary artery is associated with a fairly rapid development of a collateral circulation through the bronchial vessels, but even after two years, the extent of the pulmonary fibrosis in the lung whose pulmonary artery is ligated is slight. When ligation of the pulmonary artery is associated with simultaneous resection of the phrenic nerve, fibrosis of the lung is much more extensive, but there is a distinct retardation in the formation of a collateral circulation through the bronchial artery. These two facts seem to be linked together as the most extensive fibrous reaction occurs about the radicals of the bronchial artery. It is obvious that simple ligation of the pulmonary artery is not an efficacious therapeutic procedure to stimulate fibrosis of the lung in tuberculosis, and that more beneficial results might be expected if ligation of the pulmonary artery is associated with simultaneous resection of the phrenic nerve. A final factor worthy of mention is the evidence of increased intrapulmonary pressure after ligation of the pulmonary artery as expressed by the results, both gross and microscopic, of right sided cardiac hypertrophy.

Skin Triangle of Appendicitis.—Livingston reports on the value of skin tenderness in the diagnosis of acute appendicitis. The study is based on 428 consecutive cases. He relies almost exclusively on the traction method of testing. Uncomfortable pulls of an identical strength are used in all quadrants of the abdomen. In this way, any hyperesthetic area is readily mapped out. The response within the involved zone is that of real pain. A pinch test consists of using vigorous twisting pinches on all parts of the abdominal skin, the pinch being of a degree slightly uncomfortable even on normal skin. The identical stimulus within an involved zone gives rise to an immediate defensive response on the part of the patient, who winces, cries out or reaches for the examining hand. By the appendix triangle is meant an area bounded by a line extending from the umbilicus to the highest point on the right iliac crest to the right pubic spine to the umbilicus. These lines coincide with no nerve distribution. Each of its three boundaries marks a border of use in differential diagnosis. Beneath the lower boundary is that definite area involved by renal colic; above its upper boundary is a similar area involved in such conditions as biliary colic. Hyperesthesia confined within these borders is caused, in Livingston's experience, by no other intra-abdominal condition than involvement of the appendix. This sign was present in 86 per cent of more than 400 patients with acute appendicitis. It was of more value than any other sign or symptom in the diagnosis of acute appendicitis.

Reenforcement of Relaxed Joints.—In cases of lax knee joint, Bennett plicates the joint capsule and reenforces it with a strip of fascia laced into the capsule. In shoulder cases, a strip of fascia is taken from the tensor fascia femoris and is laced into the joint capsule to form a ligament extending from the acromion to the anterior capsule. The subscapular tendon may be included. This ligament reenforces the capsule in a way that prevents an anterior dislocation of the shoulder.

Iowa State Medical Society Journal, Des Moines

16: 433-478 (Oct.) 1926

Tomorrow is Also a Day. A. R. Mitchell, Lincoln, Neb.—p. 433.

*Embolic Manifestations of Heart Disease. F. A. Willius, Rochester, Minn.—p. 437.

Influence of Rectal Disease on General Health. C. J. Drueck, Chicago. —p. 440.

Acute Ruptured Gastric Ulcers. H. L. Brereton, Emmetsburg.—p. 445.

*Rural Pediatrician. R. P. Forbes, Denver.—p. 447.

Cardiorenal Vascular Disease. E. W. Wilson, Rolfe.—p. 449.

Sespe Snaps and Snatches. J. W. Shuman, Los Angeles.—p. 453.

Embolic Manifestations of Heart Disease.—Willius asserts that no form of heart disease is free from the perils of embolism. He discusses the occurrence of this complication in bacterial endocarditis, rheumatic endocarditis, coronary thrombosis and embolism, myocardial degeneration, pericarditis and cardiovascular syphilis.

Rural Pediatrician.—Forbes sees a great field for the rural pediatrician. When no health program for children has been initiated in the community, his work is at once most needed and most difficult. When health clinics have aroused public interest, the work is easier and, in fact, the laity in rural districts is demanding the physician's interest in the well child. In the future, no young physician should contemplate serving a rural community unless he has an intelligent, sympathetic interest in children, whether they are sick or well. But little special training is required, and this will be repaid by a large office practice.

Journal of Immunology, Baltimore

12: 251-330 (Oct.) 1926

Value of Blood-Group Feature as Means of Determining Racial Relationship. E. F. Grove, New York.—p. 251.

*Specific Hypersensitiveness: XXVI. Asthma and Dermatitis Due to Hypersensitiveness to Pediculoides Ventricosus. E. F. Grove, New York.—p. 263.

Serologic Relationship of Acid-Fast Bacteria. J. Furth, Philadelphia. —p. 273.

*Diagnosis of Chronic Gonorrhea in Women. R. S. Patterson, Philadelphia.—p. 293.

Heterologous Corpuscular Anaphylaxis. R. R. Hyde, Baltimore.—p. 309.

Lethal Action of Brain Extracts for Rabbit and Guinea-Pig. R. R. Hyde and E. I. Parsons, Baltimore.—p. 321.

Response of Orally Immunized Rats to Second Injection of Pneumococcus and Minimum Duration of Immunity. V. Ross, Bloomfield, N. J.—p. 323.

Specific Hypersensitiveness; Asthma.—The "epidemic" form of bronchial asthma described by Ancona in Florence has been studied there by Grove with respect to the nature of the skin reactivity, and also in order to see whether the blood of the

affected persons contains atopic reagins. The cutaneous reaction was found to be different from that of atopic hypersensitiveness: (*a*) because it is quite inconstant and (*b*) because it is exhibited on surface application of the excitant. Sensitizing bodies could not be demonstrated in the blood of either of the two sensitive patients presenting a markedly positive skin reaction.

Serodiagnosis of Chronic Gonorrhea in Women.—Of the 184 women tested by Patterson, eighty-three were clinically positive at the time the test was performed. Of these, only 15 per cent gave negative reactions; whereas, 63 per cent gave a definitely positive reaction, the remainder being doubtful. It is assumed (*a*) that the pus-antigen complement fixation reaction does give positive results in cases of gonorrhea in which the pus is rich in gonococci and, presumably, in antigenic substances; (*b*) that the reaction is specific, in that discharges from other infections did not give positive reactions; but (*c*) that in many chronic cases the discharges do not contain sufficient antigen to cause a reaction strong enough to be read with certainty. (*d*) The pus-antigen complement fixation does not give as large a proportion of positive results in subacute and chronic cases as does the blood complement fixation reaction, and hence is inferior to the latter as an aid to the diagnosis of chronic gonorrhea.

Journal of Industrial Hygiene, Baltimore

8: 457-508 (Nov.) 1926

Dust Phthisis (Pulmonary Silicosis). E. L. Collis, London.—p. 457.
Silicosis Among Hard Ground Workers in Coal Mines. N. Tattersall, London.—p. 466.
Exposure to Silica Dust Without Occurrence of Silicosis. P. Heffernan.—p. 481.
Experimental Silicosis. E. H. Kettle, London.—p. 491.
Dust Trap to be Used in Conjunction with Percussive Rock Drills. P. S. Hay, London.—p. 496.

Journal of Laboratory and Clinical Medicine, St. Louis

12: 1-108 (Oct.) 1926

*Routine Skin Tests in Chronic Nephritis. L. C. B. Baldwin, Boston.—p. 1.
*Blood Uric Acid in Nephritis. W. P. Holbrook and H. D. Haskins, Portland, Ore.—p. 10.
*Reducing Substances in Urine. R. D. Leas, Cleveland.—p. 15.
*Prophylactic and Therapeutic Possibilities of Twort-D'Herelle's Bacteriophage. L. Arnold and E. Weiss, Chicago.—p. 20.
*Elective Localization of Bacteria in Heart and Vascular Disease. R. L. Haden, Kansas City, Mo.—p. 31.
*Sugar and Chloride Content of Cerebrospinal Fluid, Especially in Neurosyphilis. S. W. Becker, Rochester, Minn.—p. 43.
Use of Isopropyl Alcohol in Preparation of Wassermann Antigens. R. M. Isham, Okmulgee, Okla.—p. 52.
*Spirochetal Bronchitis Successfully Treated with Arsphenamine. J. W. Visher, Twin Falls, Idaho.—p. 55.
*Case of Coccidioidal Granuloma with Necropsy Findings. F. Proescher, F. Ryan and A. P. Krueger, San Jose, Calif.—p. 57.
Large Mononuclear and Transitional Leukocyte of Human Blood. F. A. McJunkin, St. Louis.—p. 71.
*Determination of Calcium in Whole Blood. W. R. Caven and A. Cantarow, Philadelphia.—p. 76.

Skin Tests in Chronic Nephritis.—Routine skin tests were made by Baldwin in twenty-three unselected cases of chronic nephritis. Only the more common food proteins were employed and the same proteins were used in every case. They were applied cutaneously by the Walker technic. Only two patients gave definitely positive reactions to food proteins. Intracutaneous tests with the bacterial proteins were entirely unsatisfactory. If the skin test is an accurate index of protein sensitization, it would seem that chronic nephritis is not commonly caused by proteins derived from the food. But on the other hand, there is abundant evidence elsewhere in the literature to show that protein sensitization may exist in spite of repeated negative skin tests, and therefore, Baldwin says, this problem will have to be studied further before any decision can be made.

Blood Uric Acid in Nephritis.—Holbrook and Haskins endeavored to determine the clinical value of estimations of the uric acid of the blood as an indication of kidney impairment. Of eighty-seven patients with nephritis, 86 per cent showed urea retention, 60 per cent showed creatinine retention, and only 30 per cent showed uric acid retention. Therefore, it is evident that uric acid determinations cannot be used clinically as a reliable indication of kidney impairment. Uric acid is not retained in the blood at an earlier stage of nephritis than is urea. Creatinine estimation is much more valuable, agreeing approximately with the urea results and serving as a check on the latter. High estimations are very significant for prognosis. Urea estimations are the most reliable and significant observations of the chemical changes in the blood in nephritis. Estimation of urea in blood filtrate by Folin's method, using titration instead of nesslerization, is very advantageous. Sodium chloride estimation yields such variable results that its value in nephritis is very doubtful.

Reducing Substances in Urine.—Leas calls attention to the fact that cinchophen, salicylates and tolysin give reducing substances in the urine which may be confused with sugar by the copper reduction test alone. Data are given on thirteen cases. These reducing substances do not ferment or produce osazones, but they rotate the plane of polarized light to the left. Their presence and quantity in the urine does not depend on dosage alone. They disappear from specimens of urine in from twenty-four to eighty-six hours.

Immunity and Bacteriophage.—Arnold and Weiss assert that the lysed, soluble bacterial proteins in the bacteriophage are antigenic and confer an early active immunity. Bacteriophage, free of antigenic bacterial proteins, prevents death when injected in the rabbit after a lethal dose of bacteria has been given.

Elective Localization of Bacteria.—Forty rabbits were inoculated intravenously by Haden with bacteria taken from the infected teeth of a few patients suffering from heart or vascular disease. Eighty-two per cent of the animals showed some heart lesion; 63 per cent had valvular disease, and 50 per cent showed myocardial involvement. During the same period, 1,210 rabbits were injected similarly with cultures from patients not known to have heart or vascular disease. Twenty-two per cent of these had some heart involvement, 17 per cent had valvular lesions, and 9 per cent had myocardial disease. These results are offered as confirmatory proof of Rosenow's theory of elective localization. They emphasize, also, the possible relation of the dental infection to the heart disease.

Reducing Substances in Cerebrospinal Fluid in Neurosyphilis.—Becker found a definite but small decrease, with rather wide range of values, in the reducing substance of the cerebrospinal fluid in cases of neurosyphilis. There is a slight normal variation in the content of sugar in the spinal fluid, which is not as great as that in the blood. Length of time without food made some difference in the level of sugar in the blood, but apparently none in that of the cerebrospinal fluid. There is a slight tendency toward low values for sugar in the spinal fluid along with a cell count, and in cases with colloidal benzoin reaction in the first zone. The regular comparative tabulations of Wittgenstein could not be duplicated. Alimentary hyperglycemia up to 185 mg. produced no increase of sugar in the spinal fluid. There was no alteration in sugar content under treatment in cases followed as long as five months. The extremely low values for sugar in the spinal fluid in cases of neurosyphilis and the marked rise following treatment, as noted by some authors, could not be confirmed. No information was obtained that would definitely aid in prognosis, although observation has lasted one and one-half years. Careful observation over years with repeated determinations of the content of sugar in the spinal fluid may prove valuable. There is a variation in the chloride content of the cerebrospinal fluid which is not as great as in the chlorides of the whole blood. In all the cases of neurosyphilis, the spinal fluid showed a normal chloride content.

Neoarsphenamine in Spirochetal Bronchitis.—A case of purulent bronchitis due to Vincent's spirochete and to the fusiform bacillus is reported by Visher, in which prompt recovery followed the administration of neoarsphenamine intravenously. The importance and the simplicity of the early recognition of this infection are emphasized.

Coccidioidal Granuloma.—The case reported by Proescher, Ryan and Krueger presents a typical infection with *Coccidioides imitis* of about six months' duration, and with fatal termination. The initial clinical symptoms were a bronchitis with slight fever, general malaise and debility. After the

temperature had subsided, pain, simulating articular rheumatism, developed in the left hip, right ankle and thumb. An abscess developed on the right side of the nose, followed by multiple abscesses of the head, thumb and right malleolus. The abscesses were all subperiosteal, did not heal, and did not respond to any treatment. From the character and the distribution of the lesions, a blood stream infection was suspected, and was confirmed by a positive blood culture obtained shortly before death. The immediate cause of death was probably a toxemia. A detailed report on the necropsy is given.

Determination of Calcium in Blood.—The method devised by Caven and Cantarow is based on the Clark-Collip modification of the Kramer-Tisdall method for determination of serum calcium. The calcium is precipitated as calcium oxalate, the blood being hemolyzed by the addition of distilled water. The calcium oxalate is transformed by sulphuric acid into oxalic acid which is titrated with potassium permanganate. Using this method, the authors have found the normal range of whole blood calcium to be from 6.5 to 9.5 mg. per hundred cubic centimeters.

Journal of Nervous and Mental Disease, New York

64: 433-560 (Nov.) 1926

Regulated Activities. S. Paton, New Haven, Conn.—p. 433.
Factors Which Determine Schizophrenic (Dementia Praecox) Reaction in Males. O. H. Boltz, Wards Island, N. Y.—p. 456. (To be Cont'd.)
*Psychoses in Criminals: Psychopathology of Crime. B. Karpman, Washington, D. C.—p. 482.
Postencephalitic Respiratory Disorders. S. E. Jelliffe, New York.—p. 503.

Criminal Psychopathology.—Karpman attempts an inquiry in the field of criminal psychopathology by delimiting, first, types of personality make-ups of individual criminals, and the specific nature of psychobiologic difficulties that condition and precipitate criminal behavior; and second, by attempting to determine the relation existing between the particular type of criminal personality and its reaction toward crime and confinement. Individualization of the problem is emphasized. The approach is essentially a clinical one, and the data utilized are those gained from observation extending over six years. A classification of criminals on the basis of original personality make-up and the nature of pathologic phenomena exhibited, is submitted; and a classification of the various types of neuropsychic reactions shown by prisoners following confinement is also offered.

Maine Medical Association Journal, Portland

17: 169-187 (Oct.) 1926

Blood Counts in Diagnosis. J. Hewat, Lewiston.—p. 169.

Medical Journal and Record, New York

124: 525-592 (Nov. 3) 1926

Knowledge Concerning Thymus Gland. I. A. Abt, Chicago.—p. 525.
*Chronic Hereditary and Familial Hemolytic Jaundice. W. F. Dutton, Amarillo, Texas.—p. 530.
Metal Poisoning by Administration of Colloidals. N. Alpert, Baltimore.—p. 534.
*Bothriocephalus Latus Infestation. T. Rosenthal, New York.—p. 536.
Chemical Aspects of Life and Disease. E. McDonald, Philadelphia.—p. 538.
*Congenital Genu Recurvatum. S. W. Boorstein, New York.—p. 541.
*Tissue Fibrinogen by Mouth in Treatment of Acute Hemorrhage in Hemophilia. L. B. Dickey, San Francisco.—p. 543.
Principles in Treatment of Cancer. R. J. Behan, Pittsburgh.—p. 544.
*Homigrade Thermometer. F. E. Aspinwall, Miami, Fla.—p. 548.
*Device for Facilitating Digital Examination of Rectum. J. F. Montague, New York.—p. 550.
Epileptic Convulsion as Type of Extrapyramidal Motor Disturbance. L. B. Alford, St. Louis.—p. 551.
Bilateral Abducens Paralysis Associated with Paralysis of Convergence. J. P. River, San Francisco.—p. 553.
Cerebral Tumors and Psychoses. A. Gordon, Philadelphia.—p. 555.
Encephalitis: Atypical Modes of Onset. J. A. Jackson and H. V. Pike, Danville, Pa.—p. 560.
Serology of General Paralysis in Malaria Treated Cases. A. Ferraro and T. C. C. Fong, Washington, D. C.—p. 562.
Early Remedies for Hydrophobia. K. Maddrey, Austin, Texas.—p. 570.

Hereditary Hemolytic Jaundice.—The five cases reported by Dutton represent three generations. Sex does not appear to have been a factor in the transmission of disease. Jaundice, in these cases, had been present from birth.

Bothriocephalus Latus Infestation.—A case of bothriocephalus infestation is presented by Rosenthal with a report of the laboratory examination and a review of the literature. The patient in question had always been fond of fish, and had eaten it all her life. She said that about twenty-three years ago, while preparing some fish, she found a tapeworm in one of them. She had never eaten raw fish. Under appropriate treatment, the patient expelled a worm 18 feet long.

Congenital Genu Recurvatum.—Boorstein asserts that congenital genu recurvatum is amenable to treatment. A small Thomas-Jones splint can be used to keep the limb in the proper position. Massage and exercises can be used easily with this brace. One case is reported.

Tissue Fibrinogen in Hemophilia.—In two cases of hemophilia reported by Dickey, tissue fibrinogen, administered by mouth, in ice water, on an empty stomach, exerted a very decided effect on the bleeding coincident with a marked reduction in coagulation time of the blood. In these cases, the bleeding was checked for the period of observation, although the coagulation time was reduced for only a few days at the most.

Homigrade Thermometer.—In the homigrade thermometer proposed by Aspinwall the so-called human normal is 100. Zero is at the point without dimension between freezing and thawing, which in this system is called the vital heat zero, because even in the hardiest of organisms or parts thereof this point marks the complete cessation of vital action, functioning being resumed, if possible, only after a sufficient rise in temperature. The least fall in temperature below this zero causes a congelation of their fluids which destroys some organisms. An imperceptible variation from this zero is either freezing or thawing. Receding from this point, both heat and cold become more intense. To express the standard boiling point of water in the homigrade scale, the figure 270 was chosen because of consequent ideal figures at other important points in the scale, especially 100 at the human normal, or full vital heat within the radius of common sensation. This point is one tenth of a homigrade degree above 98.6 F. and 37 C. This scale mark, therefore, constitutes a new centigrade with its 100 mark at the human normal. Hence its degrees have each a value of 1 per cent of the measure of this normal.

Finger Guard for Rectal Examinations.—Montague advocates the use of a finger guard consisting of a circular piece of rubber, in the center of which one finger has been cemented, for digital examination of the rectum, and details its advantages over the rubber glove.

Medicine, Baltimore

5: 375-547 (Nov.) 1926

Significance of Physical Constitution in Mental Disease. F. I. Wertheimer and F. E. Hesketh, Baltimore.—p. 375.
Immunity in Syphilis. A. M. Chesney, Baltimore.—p. 463.

Michigan State Medical Society Journal, Grand Rapids

25: 545-618 (Nov.) 1926

Increasing Responsibilities of Medical Profession. C. C. Little, Ann Arbor.—p. 545.
Surgery of Tuberculous. I. Abell, Louisville, Ky.—p. 550.
Indications and Contraindications for Operation in Cases of Duodenal Ulcer. E. S. Judd, Rochester, Minn.—p. 555.
Physician and Deafened Patient. H. Hays, New York.—p. 561.
Relation of Pulse Rate and Pulse Pressure to Basal Metabolism. J. B. Jackson, Kalamazoo.—p. 565.
*Femoral Blood Pressure: Hyperthyroidism. W. R. Vis, Grand Rapids.—p. 567.
Gynecologic Disturbances of Mechanical Origin. N. F. Miller, Ann Arbor.—p. 571.
Rupture of Uterus and Vagina During Labor. H. Henderson and M. M. Cope, Detroit.—p. 574.
Endocrine Amenorrhea. R. L. Schaefer, Detroit.—p. 581.

Femoral Blood Pressure.—Vis has studied the femoral blood pressure in about 600 cases representing various types of disorders. He found that femoral blood pressure is usually higher than brachial pressure. In hypertension and in arteriosclerosis, the femoral may greatly exceed the brachial pressure, with a relatively higher pulse pressure in the femoral. In thyroid cases, there may occur an equalization of pressures, the brachial apparently rising to the level of the femoral. Such equalization of pressures may become permanent

Minnesota Medicine, St. Paul

9: 603-660 (Nov.) 1926

*Acute Laryngeal Obstruction. S. W. Adler, Winona.—p. 603.
*Roentgen-Ray Observations in Pneumonia. L. G. Rigler, Minneapolis.—p. 611.
Surgical Treatment for Residual Infantile Paralysis. M. S. Henderson, Rochester.—p. 621.
Mechanical Treatment of Anterior Poliomyelitis. C. C. Chatterton, St. Paul.—p. 625.
*Cardiovascular Renal Disease in Relation to Surgery. V. C. Hunt, Rochester.—p. 628.
*Biliary Function. J. P. Schneider, Minneapolis.—p. 631.
Urologic Diagnosis in General Surgery. A. E. Sohmer, Mankato.—p. 645.

Acute Laryngeal Obstruction.—Adler believes it highly desirable to maintain special hospital services to provide instruction in the treatment of acute laryngeal obstructions.

Roentgen-Ray Observations in Pneumonia.—Rigler finds the roentgen-ray examination of the lungs an excellent means for the diagnosis and study of acute pulmonary conditions. The presence of pneumonia, its type, distribution and extent can be determined accurately in this way. Particular attention is directed to capillary pneumonia following measles, and a form of localized bronchopneumonia simulating early tuberculosis.

Cardiovascular Renal Disease in Relation to Surgery.—Present methods of determining cardiovascular and renal efficiency and reserve, together with the adequate methods of preoperative treatment, in Hunt's opinion, afford opportunity for surgical relief of many coexisting and exacerbating conditions, with a surprisingly low mortality rate, heretofore not appreciated.

Biliary Function.—Schneider asserts that the most accurate and delicate single liver parenchyma function test in the absence of total duct obstruction is the play of urobilinogen in the fresh urine. In the presence of total duct obstruction and consequent jaundice, the best functional test is the oral administration of bilirubin with the urinary consequences. In this latter situation, if the parenchyma is normal, no urobilin will appear in the urine; if it is injured, the degree of injury at the time of the test will be deflected proportionally in the urine. It goes without saying that hemolytic disease must naturally first be excluded.

Philippine Islands Medical Association Journal, Manila

6: 287-320 (Sept.) 1926

Perineal Versus Suprapubic Prostatectomy. J. Eduque, Manila.—p. 287.
*Case of Occult Pancreatic and Suprarenal Hemorrhages Terminating in Death. C. D. Franco, Manila.—p. 290.
*Case of Colibacillemia. A. B. M. Sison and P. V. Cruz, Manila.—p. 294.
Report of Filaria Survey in Philippines. L. L. Rizal and R. G. Padua, Manila.—p. 298.
Impressions on Medical Education. L. Gomez, Manila.—p. 300.

Fatal Rupture of Pancreas Without Symptoms.—Franco reports the case of a boy, aged 7½ years, who presented tenderness and distention of the abdomen, with nausea and vomiting, high fever and marked leukocytosis, but without any detectable signs of external violence over the abdomen or back. Acute peritonitis, due to a ruptured appendix, was suspected and a laparotomy was performed. Nothing was found. Fourteen hours later, the boy died. At the necropsy only rupture of the pancreas was discovered, with the resulting pancreaticoperitoneal hemorrhages.

Symptoms of Colibacillemia.—The main symptoms in the case cited by Sison and Cruz were vomiting, epigastric pain and headache. The abdomen showed slight rigidity and tenderness over the right upper quadrant. The leukocyte count varied from 15,000 to 21,600 with distinct preponderance of neutrophils, ranging from 86 to 95 per cent. The day before death, the patient suddenly became very ill and developed severe dyspnea, low, muttering delirium, and bleeding of the mucosa of the mouth and gums. A blood culture made eight hours before death gave a pure culture of *Bacillus coli*. The clinical diagnosis was septicemia, cholecystitis and cholelithiasis and acute hepatitis. The anatomic diagnosis was septicemia, acute; septic hepatitis and splenitis; hemorrhagic lymphadenitis (bubonic plague?), multiple abscesses in kidneys. That all the morbid changes in this case had been caused by *Bacillus coli* is not the least doubted, as this organism was isolated in pure culture from the blood during life, and later recovered from the lesions after death in pure cultures.

Physiological Reviews, Baltimore

6: 547-682 (Oct.) 1926

Conduction of Nerve Impulse. H. Davis, Boston.—p. 547.
Regulation of Coronary Circulation. G. V. Anrep, Cambridge, Mass.—p. 596.
Recent Advances in Study of Blood Sugar and Diabetes. A. D. Stammers, Johannesburg, South Africa.—p. 630.

Radiology, St. Paul

7: 371-462 (Nov.) 1926

Diverticulitis of Colon. C. D. Enfield, Louisville, Ky.—p. 371.
*Roentgen-Ray Treatment of Leukemias. E. L. Jenkinson, Chicago.—p. 379.
Roentgenologic Exploration of Spinal and Cerebral Spaces, Genito-Urinary Organs and Other Organic Cavities with Iodized Oil. J. A. Sicard, Paris, and J. E. Forestier, Aix-les-Bains, France.—p. 385.
Roentgen-Ray Study of Development of Ossification Centers of Skeletal System. B. Allen, Iowa City.—p. 398.
*"Cyclic Vomiting" in Infants and Children. L. T. LeWald, New York.—p. 410.
Thymus in New-Born and Early Infancy. G. J. Noback, New York.—p. 416.
New Type of Fluorescent Screen. I. S. Hirsch, New York.—p. 422.
Radioactive Substances: Therapeutic Uses. J. Muir, New York.—p. 426.
Traumatic Dislocation of Knee Joint. H. H. Huber, A. Yaffee and H. B. Podlasky, Milwaukee.—p. 431.
Mediastinal Cyst. L. G. Brown, Colorado Springs.—p. 436.

Roentgenotherapy of Leukemias.—Jenkinson does not believe that any patient with leukemia is ever cured, no matter what form of treatment is instituted. Careful roentgen-ray therapy is at present the most satisfactory method of treatment. That life is prolonged is problematic; the number of working days is increased beyond a doubt, and the amount of suffering is greatly decreased.

Cyclic Vomiting.—In a series of about 200 infants and children referred to LeWald for roentgen-ray examination on account of chronic disorders of the digestive tract, a history of recurrent or cyclic vomiting was obtainable in at least one third of the cases. A previous diagnosis of acidosis had been made in at least 20 per cent. The predominant roentgen-ray observations, particularly redundance, related to the colon. Pylorospasm, dilatation of the stomach, and ptosis of the stomach were frequent additional conditions. Roentgen-ray evidence of chronic appendicitis sufficient to warrant operation was encountered in only a very few instances. In one case, in which the gastro-intestinal tract was normal, operation for correction of internal strabismus cured the vomiting attacks.

Surgery, Gynecology and Obstetrics, Chicago

43: 559-718 (Nov.) 1926

*Diffuse Gastric Polyposis; Adenopapillomatosis Gastrica. H. Brunn and F. Pearl, San Francisco.—p. 559.
*Production of Artificial Pleural Adhesions. R. B. Bettman, Chicago.—p. 599.
*Femoral Osteochondritis of Adolescents and Sequelae; Epiphyseal Separation of Hip. I. Balensweig, New York.—p. 604.
Drainage as Factor in Renal Disease. G. L. Hunner, Baltimore.—p. 615.
*Treatment of Pylephlebitis of Appendicular Origin. R. Colp, New York.—p. 627.
*Parasitic Fibromyomata. J. C. Masson, Rochester, Minn.—p. 645.
Pituitary Extract Administered at Beginning of Third Stage of Labor. R. A. Scott, Evanston, Ill.—p. 651.
*Symmetrical Congenital Brachydactylia: S. W. Boorstein, New York.—p. 654.
*Roentgen-Ray Treatment of Hypofunction of Ovary: Regulation of Menstrual Function. I. S. Hirsch, New York.—p. 659.
Ilio-Abdominal Amputation for Sarcoma; Recovery; Pregnancy and Birth of Living Child. S. S. Judin, Serpouhoff, U. S. S. R.—p. 668.
Covering of Raw Surfaces with Particular Reference to Hand. S. L. Koch, Chicago.—p. 677.
Technic of Ivanissevich's Operation for Varicocele. J. Arce, Buenos Aires.—p. 687.
Management of Carcinoma of Esophagus. M. C. Myerson, New York.—p. 690.
Charcot Joints in Case of Syringomyelia. R. K. Ghormley, Boston.—p. 695.
Prevention and Relief of Prolapsus Uteri. R. S. Cron, Milwaukee.—p. 698.
*Intestinal Fistulas; Preventing Skin Excoriation. J. F. Smith and H. H. Christensen, Wausau, Wis.—p. 701.

Diffuse Gastric Polyposis. — Diffuse gastric polyposis is seemingly a rare disease. Brunn and Pearl have been able to collect reports of only eighty-four cases from the literature. Gastric polyposis may be congenital in origin or may arise from an inflammatory basis. It is of great interest that these tumors have been reproduced experimentally. The symptoms and physical signs are not characteristic. Achylia is the most significant symptom; combined with fresh blood and abundant mucus it should suggest the diagnosis. The roentgenogram properly interpreted is the most valuable diagnostic aid. Gastroscopy and the examination of shreds from gastric washings are useful diagnostic factors. Malignant degeneration occurred in 12 per cent of the eighty-four cases reviewed. The treatment is surgical. The authors report twelve cases. It is of interest that pernicious anemia did not develop, in spite of a continuing achlorhydria.

Artificial Pleural Adhesions. — A method is described by Bettman which, in dogs at least, produces adhesions with such consistency as to be satisfactory. This method consists of inserting a bit of tape into the pleural space and allowing it to remain there for a period of at least seven days.

Osteochondritis of Hip. — Balensweig discusses an osteochondritis involving the diaphyseal portion of the epiphyseal line and the immediate diaphysis of the neck of the femur. The origin is probably a low grade infection. Traumatism and endocrine dysfunction are contributory causes. The onset of the actual disturbance (at about the age of 11 years) occurs long before the patients are observed by the orthopedic surgeon. There is a distinct relationship between the osteochondritis of adolescents and Perthes' disease (osteochondritis juvenilis deformans).

Treatment of Pylephlebitis of Appendicular Origin.—Four cases of acute gangrenous appendicitis complicated by pylephlebitis are reported by Colp. In three, the portal vein, and in one, the superior mesenteric vein (which, because of adhesions distorting it, was mistaken for the portal), were ligated with the hope of preventing the spread of the infection and preserving the integrity of the liver tissue. Unfortunately, all the patients died. One patient lived for six days after operation.

Parasitic Fibromyoma.—Only three cases of true parasitic fibromyoma have been seen by Masson in the Mayo Clinic. Of the three cases with a particular parasitic fibromyoma, the tumor was intraperitoneal in one, retroperitoneal in one and vaginal in one.

Symmetrical Congenital Brachydactylia. — Five cases are reported by Boorstein. Two occurred in the same family. The fourth metacarpal was the bone most frequently involved.

Roentgen Ray Improves Ovarian Function.—Hirsch asserts that a certain dosage of roentgen ray in carefully selected cases is capable of producing improvement in ovarian function, as shown by the regulation of the menstruation and the induction of pregnancy with the birth of healthy children.

Preventing Skin Excoriation in Intestinal Fistula.—Smith and Christensen present what they have found to be a rational and satisfactory method of preventing excoriation from intestinal drainage. The enzymes are inhibited by absorption in inorganic substances. Kaolin is preferred, being readily available, easily sterilized, inexpensive, and suitable as a surgical dressing. Patients with small bowel fistulas can be made comfortable at once by the application of kaolin-glycerin dressings to the skin. Extensive skin excoriation may be controlled to the extent that the skin and other tissues about the fistula may be restored to a condition which will permit a surgical repair or closure to be carried out.

Tennessee State Medical Association Journal, Nashville

19: 115-144 (Sept.) 1926

Cancer of Skin and Mouth. J. M. King, Nashville.—p. 115.
Treatment of General Paralysis by Inoculation of Malaria. C. C. Turner, Memphis.—p. 122.
Surgical Significance of Jaundice. R. L. Sanders, Memphis.—p. 128.
Comparison of Wassermann Test with Kahn Test in 17,000 Serums. W. Litterer, Nashville.—p. 133.
Treatment of Injured Joints. W. S. Anderson, Memphis.—p. 136.

Wisconsin Medical Journal, Milwaukee

25: 471-530 (Oct.) 1926

*First Infection in Pulmonary Tuberculosis. L. R. Sante, St. Louis.—p. 475.
Analysis of Bone and Joint Lesions of Known Syphilitic Origin. W. C. Campbell, Memphis, Tenn.—p. 479.
Roentgenologist as Consultant. A. Hartung, Chicago.—p. 487.
*Newer Clinical Aspects of Gastric Carcinoma. G. B. Eusterman, Rochester, Minn.—p. 491.
Fracture of Humerus: Nonunion. H. B. Podlasky, Milwaukee.—p. 497.
Duplication of Ureter: Case. C. A. H. Fortier, Milwaukee.—p. 498.
*Osteosarcoma Treated with Roentgen Rays. H. C. Schumm and H. R. Foerster, Milwaukee.—p. 499.
*Calcified Brain Tumor. S. Baumgarten, Milwaukee.—p. 501.
Hydronephrosis; Case. W. C. Stewart, G. Perry and A. Schlapik, Kenosha.—p. 502.

First Infection in Pulmonary Tuberculosis. — The facts established by Opie in connection with first infections in tuberculosis would seem to indicate two distinct types of pulmonary involvement: one, a first infection predominating in children, affecting all portions of the lung with equal frequency, always associated with regional caseous lymph nodes; the other, a reinfection in adults, starting in the apex, tending to fibrosis and healing, never associated with caseous regional lymph nodes. Sante feels that the adult type might also be considered as a first infection, the two different types of lesions being due to fundamental differences in anatomy and physiology between the adult's and child's lungs. The adult type occurs at the periphery of the lung where the bronchial and pulmonary circulations mix. Lymph drainage from this region is in two directions: one, toward the hilum region, giving rise to the appearance of Dunham's fan; the other, toward the pleura, giving rise to thickening of the pleura in the region involved and in the interlobe. Thickening of the interlobar pleura on the involved side was found in a large majority of incipient cases. Thickening of the interlobar pleura is obviously not pathognomonic of incipient tuberculosis, but if the existence of other possible causes can be ruled out, it is of distinct significance when associated with questionable incipient lesions in the apex.

Analysis of Carcinoma of Stomach. — Eusterman asserts that 8 per cent of carcinomatous ulcers occur in patients less than 40 years of age. With present available methods of diagnosis, it is usually impossible to distinguish them from benign ulcer. Gastric ulcers in patients past middle age may be considered as benign in the presence of adequate acidity even though the symptoms are of short duration, and gastric ulcers in elderly patients usually remain benign in spite of long duration of symptoms. An adequate acidity is a fair clinical criterion of their nonmalignant nature. Only 4.5 per cent of chronic benign gastric ulcers in patients past middle life are associated with achlorhydria. They represent mainly the infectious perforating type. It is reasonable to infer that roentgenologically depicted circumscribed lesions associated with subacidity or anacidity are potentially or actually malignant, with few exceptions. If there are such additional features as a large crater, tumefaction, early onset of obstruction, onset late in life, an irregular or progressive history in the absence of demonstrable complications, or inability to obtain adequate or complete relief by proper treatment, then a malignant condition is highly probable, and surgical intervention should be urged.

Roentgenotherapy of Bone Sarcoma.—Schumm and Foerster report the case of a man, aged 45, who was crippled by a painful, inoperable, advanced mixed round cell and giant cell sarcoma of the right sacro-iliac joint. He was rendered symptom free, and returned to usefulness and apparent health within nine weeks by roentgen-ray treatment, entailing no risk to life and no hospitalization. A recurrent malignant growth in the right scapula, also inoperable, and occurring almost two years later, was also apparently overcome within six weeks. Though the patient eventually succumbed to the disease two years and eight months after he was first placed under roentgen-ray treatment most of that added span of life was enjoyed in apparent good health and happiness with his family and among his friends.

Calcified Brain Tumor.—Baumgarten's patient, aged 30, had a calcified brain tumor (probably glioma) in the posterior cranial fossa, with markedly increased intracranial pressure.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Acta Dermatologica, Kyoto, Japan

8: 385-482 (Sept.) 1926

*Kidney Tuberculosis. S. Niijima.—p. 395.
Papulonecrotic Tuberculid and Miliopustular Syphilid. S. Watanabe. p. 397.
*Statistics on Eczema: II. Takahashi.—p. 409.
Dye Excreting Function of Sweat Glands. S. Takahashi.—p. 425.
Experimental Studies of Precipitin and Specific Cutireaction: V. Disappearance of Cutaneously Injected Antigens in Normal and Immunized Animals. S. Shosi.—p. 443.

Tuberculosis of Kidney.—Niijima analyzed 4,028 necropsy records. In 3.7 per cent of all cases and 28.1 per cent of cases with tuberculosis, kidney tuberculosis was present. It was more often bilateral than unilateral. In cases of chronic kidney tuberculosis in men, the right kidney was more often affected and in women, the left. Primary tuberculosis of the kidney is said to be unknown.

Ages of Children with Eczema.—The 2,649 cases of eczema in children reported on by Takahashi were about equally divided between the sexes; 805 cases occurred at 1 year of age, 563 at 2 years; 380 at 3 years, 237 at 4 years, 159 at 5 years, seventy-two at 7 years, and so on with diminishing frequency up to the age of 15, when only thirty-three cases occurred. The fewest cases occurred during June, July and August; the most during December and January.

Indian Medical Record, Calcutta

46: 257-302 (Sept.) 1926

Seed and Soil in Leprosy. E. Muir.—p. 257.
Certain Pathologic Aspects of Leprosy. H. W. Wade.—p. 258.
Some Aspects in Study of Leprosy. K. K. Chaterji.—p. 263.
Ocular Leprosy. S. K. Mukherjee.—p. 264.
Ionic Medication of Sodium Hydnocarpate in Treatment of Leprosy. A. Gupta.—p. 265.
Treatment of Leprosy by Autolyzed Tubercle Bacillary Culture Vaccine. R. Row.—p. 266.
Leprosy. E. F. Neve.—p. 267.
Iridocyclitis in Leprosy. B. Bhaduri.—p. 269.
Preliminary Observations on Experiments with New Drugs in Cases of Leprosy. S. K. Mukherji.—p. 271.
Some Reflections on Leprosy. C. G. Mahadevia.—p. 271.
Leprosy. S. N. De.—p. 272.
Nastin Treatment of Leprosy. R. N. Chatterjee.—p. 274.
Hydnocarpus Wightiana—Ancient Remedy for Leprosy. M. Sen.—p. 275.
Leprosy in Ayurveda. Radhakrishna.—p. 275.
Experience in Treatment of Mahakustha (Leprosy) According to Ayurveda. K. A. C. Bisharad.—p. 279.
Present State of Our Knowledge of Leprosy. S. K. Mukherji.—p. 281.
Leukoderma. A. Gupta.—p. 291.

46: 303-334 (Oct.) 1926

Bismuth Preparations in Treatment of Syphilis. S. N. Sinha.—p. 303.
Antibodies of Third Order or Cytolysins. A. R. L. M. S. Hazaribagh.—p. 305.

International Journal of Psycho-Analysis, London

7: 297-537 (Oct.) 1926

Sigmund Freud on His Seventieth Birthday. S. Ferenczi.—p. 297.
Origin and Structure of Super-Ego. E. Jones.—p. 303.
Problem of Acceptance of Unpleasant Ideas: Advances in Knowledge of Sense of Reality. S. Ferenczi.—p. 312.
Flight from Womanhood: Masculinity-Complex in Women, as Viewed by Men and Women. K. Horney.—p. 324.
Neurosis and Whole Personality. F. Alexander.—p. 340.
Projection. G. Jelgersma.—p. 353.
Genesis of Feminine Super-Ego. C. Müller-Braunschweig.—p. 359.
Psychologic Factor in Etiology of Descensus Uteri, Laceration of Perineum and Vaginismus. J. Rickman.—p. 363.
Schizophrenic and Creative Thinking. R. Wälder.—p. 366.
"Technical" Form of Resistance. E. Glover.—p. 377.
Sources of Neurotic Anxiety: Contribution to Theory of Psycho-Analytic Therapy. W. Reich.—p. 381.
Type of Anal-Erotic Resistance. I. H. Coriat.—p. 392.
Psychic Effects of Intoxicants: Attempt to Evolve a Psycho-Analytical Theory of Morbid Cravings. S. Radó.—p. 396.
Conception of Ego. J. Glover.—p. 414.
Sense of Guilt and Need for Punishment. H. Nunberg.—p. 420.
Some Variations in Ego-Feeling. P. Federn.—p. 434.
Psycho-Analysis and Organic Disorder: Myopia as Paradigm. S. E. Jelliffe.—p. 445.
Psychology of Study and Examinations. E. Blum.—p. 457.
"Doctor-Game," Illness and Profession of Medicine. E. Simmel.—p. 470.
Contribution to Understanding of Sado-Masochism. J. Sadger.—p. 484.

Japan Medical World, Tokyo

6: 263-297 (Oct.) 1926

*Acute Febrile Disease Transmitted by Wild Rabbits. H. Ohara.—p. 263.
Development of Body Length, Weight and Circumference of Head of Japanese. Y. Yoshida.—p. 270.
Visiting Nurse of Imperial Charity Association "Saiseikwai." M. Miyajima.—p. 282.

Acute Febrile Disease Transmitted by Rabbits.—Ohara reports six cases of a disease occurring in Japanese as the result of handling the flesh of wild rabbits. In its early stage, the disease closely resembles influenza. It was first described by a Japanese in 1837. Ohara recovered a gram-positive diplococcus from the focus of the disease in his cases.

Journal of Oriental Medicine, Darien, South Manchuria

5: 35-56 (Oct.) 1926

Investigation of Seed Proteins of Pumpkins: I. S. Imai.—p. 35.
Id.: II. S. Imai.—p. 43.
Whooping Cough Pneumonia: 4. Experimental Pneumonia Produced by Combined Action of Endotoxins of Bordet-Gengou Bacillus and Various Living Bacteria. T. Hayakawa.—p. 52.
Determination of Hydrogen Ion Concentration by Means of Quinhydrone Chain. K. Tanaka and S. Tamamura.—p. 53.
Experimental Arteriosclerosis. M. Imai.—p. 54.
Experimental Production of Typhoid by Typhoid Bacilli. H. Nakamura.—p. 55.
Pyelography. H. Yanagihara and T. Miyata.—p. 56.

Journal of Physiology, London

62: 1-128 (Oct. 30) 1926

Arterial Pressure in Eye. W. S. Duke-Elder.—p. 1.
Effect of Carbon on Absorption of Alcohol and Influence of Alcohol on Diffusion of Dioxide in Small Intestine. N. Edkins and M. M. Murray.—p. 13.
Insulin and Production of Acetone Bodies by Perfused Liver. H. S. Raper and E. C. Smith.—p. 17.
Impulses Produced by Sensory Nerve Endings. E. D. Adrian.—p. 33.
Reversal of Action of Epinephrine. B. A. McSwiney and G. L. Brown.—p. 52.
Buffering Power of Blood of Maia Squinado. P. M. T. Kerridge.—p. 65.
Cellular Mechanism of Bile Secretion and Relation to Golgi Apparatus of Liver Cell. W. Cramer and R. J. Ludford.—p. 74.
Sensitizing Action of Alkalis. A. Hemingway.—p. 81.
Differential Paralysis of Cardiac Nerve Endings and Muscle. W. R. Witanowski.—p. 88.
Recovery Heat Production in Tortoise's Muscle. W. Hartree and G. Liljestrand.—p. 93.
"Interference" of Two Flexion Reflexes; Veszi's Experiment. T. G. Brown.—p. 98.
Application of Ethyl Iodide Method to Determination of Circulation Rate in Women. W. C. Cullis, O. Rendel and E. Dahl.—p. 104.
Chronaxia in Tetany. Effect on Chronaxie of Thyreoparathyreoidectomy, Administration of Guanidin and of Dimethyl Guanidin. D. N. Buchanan and H. S. D. Garven.—p. 115.

Mitteilungen über Allgemeine Pathologie und Pathologische Anatomie, Sendai, Japan

3: 195-342 (Oct. 4) 1926

*Relation Between Parathyroid Gland and Calcium Metabolism. T. Ipponsugi.—p. 195.
*Calcium Metabolism. I. Calcium Content in Serum of Rabbit. T. Ipponsugi.—p. 216.
*Id.: II. Calcium Content in Urine of Rabbit. T. Ipponsugi.—p. 244.
Id.: III. Calcium Content in Tissue of Rabbit. T. Ipponsugi.—p. 266.
*Id. IV. Calcium Excretion in Bile. T. Ipponsugi.—p. 303.
Medial Femoral Epicondylopathy. S. Sekiguchi and S. Ryu.—p. 317.
*Innervation of Suprarenal. T. Hoshi.—p. 328.

Relation Between Parathyroid and Calcium Metabolism.—Ipponsugi has found a relationship between the parathyroids and calcium metabolism. In a parathyroidectomized animal, the calcium content of the blood serum diminishes for several days after the operation; it increases in ten days, regaining the preoperation value about fifteen days after the operation. The calcium content of each tissue of the parathyroidectomized rabbit is far less than that of a normal rabbit, but the grade of its diminution is not influenced by the time which has elapsed since the operation, nor by the slight variation of the calcium content of the serum.

Calcium Content of Blood Serum.—Ipponsugi discusses the effects of calcium salt injection, diet and fasting on the calcium content in the serum. The close connection existing between these factors and the calcium metabolism is shown by the results of his experiments.

Calcium Content of Urine.—The urinary excretion of calcium in the normal rabbit, Ipponsugi asserts, varies with each animal and with food and time of feeding. The variation is, when the rabbit is fed on usual food, not dependent on calcium concentration in the serum. The amount of calcium excreted shows the highest value about four hours after feeding, and it decreases gradually with the lapse of time until the next feeding, demonstrating a slight variation. When calcium salt solution is given by mouth, it gives rise to the urinary excretion of a large amount of calcium from one to two and a half hours after administration. When calcium salt solution is injected intravenously, a large amount of calcium is excreted in from fifty minutes to two hours.

Calcium Excretion by Bile.—Ipponsugi found that the amount of calcium excreted in bile corresponds to about 40 per cent of that excreted in the urine in the normal rabbit. The liver is capable of excreting a certain amount of calcium. The calcium content in the bile is but little affected by the calcium content in the blood; it is definitely influenced by the calcium amount excreted from the liver. The gall-bladder is not related to the excretion of calcium.

Innervation of Suprarenal.—Hoshi asserts that the suprarenals are innervated by the splanchnic nerve of the respective side. The vagus does not have any rôle in regulating the function of the gland.

Oriental Journal of Diseases of Infants, Kyoto, Japan

1: 91-112 (Oct.) 1926

*Position of Diaphragm in Cardiac Type of Infant Beriberi. T. Suzuki.—p. 91.
*Influence of Ultraviolet Rays on Virus of Rabies. K. Takaya.—p. 103.
Erysipelas in Nursling: Complicated by Suppurative Peritonitis. E. Manabe.—p. 105.
Influence of Vitamin B on Action of Diastase. M. Miyake.—p. 105.
Case of B Pyocyaneus Nephritis in Nursling. R. Yoshida.—p. 106.
Periods of Time for Passage of Various Kinds of Foods of Infants Through Digestive Tract. M. Miyake.—p. 108.

Position of Diaphragm in Cardiac Type of Beriberi.—Suzuki has investigated the symptoms of infant beriberi, and found that in the cardiac type of this disease hypertrophy of the heart is always present, especially on the right side, and that the phosphoric acid in the urine is always remarkably increased. He has discovered that the Zueltzer's coefficient is diminished; the Koranye coefficient is markedly increased, and the liver and spleen are greatly enlarged. These signs are diagnostic of cardiac beriberi even before the real symptoms develop.

Influence of Ultraviolet Rays on Rabies Virus.—Experiments made by Takaya showed that both street virus and fixed virus are weakened by exposure to ultraviolet rays and that when the rays are strengthened, the virus is killed. Fixed virus showed a stronger resistance to the rays than street virus.

Quarterly Journal of Medicine, London

20: 1-100 (Oct.) 1926

*Calcium and Phosphorus Metabolism: IV. Influence of Free Fatty Acids in Intestine on Absorption and Excretion of Mineral Elements. S. V. Telfer.—p. 1.
*Id.: V. Infantile Rickets. Excretion and Absorption of Mineral Elements and Influence of Fats in Diet on Mineral Absorption. S. V. Telfer.—p. 7.
*Effect of Exercise on Pulmonary Ventilation and Rate and Depth of Breathing in Chronic Bronchitis. J. M. H. Campbell and E. P. Poulton.—p. 27.
Effect of Exercise on Respiratory Exchange in Chronic Bronchitis. J. M. H. Campbell and E. P. Poulton.—p. 49.
*Action of Insulin in Glycogen Formation. R. D. Lawrence.—p. 69.
*Mortality from Diabetes in England and Wales and Principal Divisions. M. Young and W. T. Russell.—p. 87.

Metabolism in Infantile Rickets.—Metabolic studies of nine cases of infantile rickets have been made by Telfer, in each of which the mode of excretion was determined from the composition of the fecal solids and the distribution of the mineral elements in the urine and feces. Low retentions of lime, magnesia, and phosphoric acid were found in the active stage of the disease, in association with a type of excretion which has the following abnormal characteristics: (*a*) An excess of mineral matter is excreted in the feces which consists mainly of lime existing as phosphate. (*b*) The percentages of total mineral matter in the fecal solids, and of the lime, magnesia, and phosphoric acid, are increased. (*c*) The concentration of total fatty derivatives lies within normal limits; but in conformity with the elimination of calcium in the feces almost wholly as phosphate, the combined fatty acids tend to be relatively low. (*d*) The urinary phosphorus is considerably less than the fecal phosphorus. This mode of excretion is discussed, and is shown to be in accordance with the hypothesis that the faulty utilization of the bone-forming elements in infantile rickets is dependent on their defective absorption, possibly secondary to some alteration of the gastro-intestinal functions. The effects produced by the addition of cod liver oil, butter fat and olive oil to the diet in active rickets are compared. The mode of action of cod liver oil is discussed. It is suggested that its prophylactic and curative effects are dependent on altered conditions of the gastro-intestinal tract which permit free absorption of the mineral elements, and that the latter is the essential factor in the prevention and cure of rickets.

Effect of Exercise on Pulmonary Ventilation.—Some evidence is brought forward by Campbell and Poulton that in chronic bronchitis the rapidity of respiration increases with the duration of the disease. In some cases of bronchitis, the pulse rate is increased with exercise; but when the pulse rate is normal, the respiratory phenomenon still remains characteristic. The authors have confirmed the fact that, in the normal, increase of carbon dioxide causes primarily an increase of respiratory depth, and defect of oxygen an increase in respiratory rate. The vital capacity may generally be a big factor in controlling the depth of respiration, but severe breathlessness was seen in a cardiac patient with nearly normal vital capacity, whose respiration was deep. One patient with effort syndrome behaved similarly to the patients with bronchitis of moderate severity.

Action of Insulin in Glycogen.—Some experiments on a diabetic patient are described by Lawrence, contrasting the effect of insulin on blood sugar with and without exercise. They show that exercise greatly increases the hypoglycemic effect of insulin, and burns carbohydrate and depletes the glycogen stores in a way that insulin alone cannot do. When the glycogen stores are empty, insulin is much more effective in reducing blood sugar than at any other time. Arguments are adduced to show that insulin is anabolic, not catabolic, in its action, that it forms glycogen from glucose, but does not burn carbohydrate directly. The experimental evidence in favor of this hypothesis of insulin action is reviewed. Clinical and experimental evidence of the conversion of fat into carbohydrate is put forward, and the connection of insulin with the process is discussed. It is suggested that the insulin requirements of the body depend on the total metabolism of the three foodstuffs, because insulin has to change into glycogen the glucose derived from carbohydrate, protein and fat, both exogenous and endogenous. The therapeutic aspect of this glycogenic theory of insulin action is considered, particularly in connection with regulation of the blood sugar level in diabetes. The impossibility of maintaining a normal fasting level in severe cases on adequate diets is pointed out.

Mortality from Diabetes in England.—The results obtained by Young and Russell by the analysis of the data from the several areas seem to indicate quite clearly that the death rate from diabetes exhibited a definite tendency to decline in the years immediately preceding the introduction of insulin. This is very probably correlated with a better knowledge of appropriate methods of dietetic treatment. Taking these results and the facts that have been discussed into consideration, there is apparently very grave doubt as to whether the best possible use is being made of insulin in the treatment of diabetes. Though other factors may have been operative in producing this state of affairs, there seems to be evidence to warrant the suggestion that, probably from some lack of appreciation by general practitioners of the valuable remedy for the disease at their disposal, and largely from lack of resolution on the part of those who suffer from the disease to persevere with the use of what is, at present, a somewhat irksome form of treatment, many valuable lives under the age of 65, that could most probably be prolonged, are still being lost to the community.

Archives de Médecine des Enfants, Paris

29: 561-616 (Oct.) 1926

Hemiplegia from Congenital Syphilis in a Child. L. Babonneix.—p. 561.
*Abortive Form of Pneumococcus Peritonitis with Relapses. G. Mouriquand et al.—p. 572.
Rheumatism with Pulmonary Infarction and Nodular Myocarditis. E. Pichon and C. R. Lardé-Arthès.—p. 581.
Vaccination of the New-Born Against Tuberculosis. J. Comby.—p. 594.

Pneumococcus Peritonitis with an Abortive Phase and Relapses.—Mouriquand, Bernheim and Rendu describe a case of primary pneumococcus peritonitis in a boy, aged 16. The first attack of the disease presented an abortive form; after a day or two the boy appeared clinically cured. A year later he suffered the first relapse, which lasted several days. The pain was of paroxysmal character and was located chiefly in the epigastrium. After this relapse he felt well for a year, at the end of which time the second relapse occurred. On this occasion there was suppuration. Surgical intervention and antipneumococcus vaccine did not prevent a fatal issue.

Bulletins de la Société Médicale des Hôpitaux, Paris

50: 1533-1559 (Nov. 5) 1926. Partial Index

*Insulin in Nondiabetic Gangrene. A. Sézary et al.—p. 1533.
*Action of Insulin in Angina Pectoris. L. Ambard et al.—p. 1537.
Morbid Phenomena with Diabetes Insipidus. L. Barbonneix and A. Duruy.—p. 1538.
Dwarfism with Exostoses. F. Rathery and J. Marie.—p. 1541.
Medical Treatment of Amebic Abscess. A. Panayotatou.—p. 1548.
*The Blood Picture in Miliaria. R. Le Blaye.—p. 1551.
Unilateral Paralysis of Cranial Nerves. Winter et al.—p. 1553.
Maillard's Coefficient and Improved Azoturia Coefficient. N. Fiessinger et al.—p. 1556.

Insulin in Treatment of Disseminated Gangrene of the Skin Plus Gangrene of the Limbs of Nondiabetic Origin.—Sézary, Hillemand and Laurent describe a case in which, in a woman, aged 78, disseminated dry gangrene of the skin was associated with gangrene of the lower limbs. Signs of diabetes were absent. Both varieties of gangrene were due to spasm of the arteries, not to thrombosis. Insulin was given, two injections a day, each of 10 units. This was supplemented by a daily dose of 0.03 Gm. of extract of belladonna, in the form of three pills, and 6 drops of spirit of glyceryl trinitrate. Improvement was manifest after eight days. The progress of both gangrenes was arrested, and the blood circulation in the arteries improved. The result of the treatment is ascribed chiefly, if not exclusively, to the action of insulin, since the other drugs were without effect when used alone.

Improvement of Angina Pectoris from Insulin.—Ambard, Schmid and Humbert's patient, a man, aged 60, had suffered from angina pectoris for twelve years. For the last two months the condition had been permanent, rendering the patient incapable of following any occupation. Treatment with 10 units of insulin a day was started. Four injections gave noteworthy relief; after eight injections, the man was able to walk to his business. The improvement persists to date, a period of more than two weeks.

The Blood Picture in Miliaria.—Le Blaye's research was made on the blood of miliaria patients during a recent epidemic in France. He found an early and often a pronounced anemia. In the grave cases the percentage of neutrophilic leukocytes (including a certain proportion of myelocytes) was as high as 90. Eosinophilia was common in mild, absent in severe cases.

Paris Médical

61: 341-380 (Nov. 6) 1926

Pediatrics in 1926. P. Lereboullet and F. Saint Girons.—p. 341.
Symptoms Accompanying Bone Deformities in Rickets. A. B. Marfan.—p. 359.
*Metabolism in Obese Children with Nervous Diseases. P. Nobécourt et al.—p. 363.
Epidemic Erythema in Children. M. Péhu and P. Ardisson.—p. 371.

Basal Metabolism in Obese Children with Nervous Diseases.—In five out of eight obese children with a disease of the brain, such as epidemic encephalitis, chronic meningitis, epilepsy or intellectual debility, the basal metabolism was reduced. Of ten obese children without clinical signs of a nervous or thyroid disease, the basal metabolism was normal in six, increased in two, and decreased in two. In nine of ten nonobese children with nervous diseases, the basal metabolism was normal. Coincidence of certain diseases of the brain with obesity and a reduced basal metabolism suggests, Nobécourt, Janet and Lebée say, the theory that reduction of the metabolism may, like obesity, be induced by changes in the cerebral center regulating nutrition. Deficiency of the thyroid gland could not be incriminated in these cases.

61: 381-396 (Nov. 13) 1926

Recent Research on the Thyroid and Parathyroids. F. Rathery and R. Kourilsky.—p. 381.
Roentgen-Ray Examination of Gallbladder. W. Vignal.—p. 387.
*Oil Injection to Replace Catheterization in Evacuation of the Bladder. Pila de Pollazzi.—p. 393.

61: 397-424 (Nov. 20) 1926. Partial Index

Medicosocial Questions from the Professional Standpoint. P. Cornet.—p. 397.
Medical Syndicalism in France. Cibrie.—p. 407.
Medical Inspection of Schools in France and Abroad. L. Dufestel.—p. 410.
Physician as Guide in Choice of Profession. G. P. Boncour.—p. 417.

Relieving Urinary Retention from Enlarged Prostate Without the Catheter.—Pila de Pollazzi employs this method in cases of chronic incomplete retention of urine from an enlarged prostate without distention of the bladder. The enlarged prostate pushes the neck of the bladder upward into the vesical cavity. This results in the formation of a pouch behind the neck. It is in this pouch that the urine is usually retained. Pila de Pollazzi's method consists in filling up this pouch with a liquid to replace the residual urine. On experiments made in this field, oil of sesame was found to be the best liquid for the purpose; thirty-three parts of the oil are mixed with 100 parts of bromine. He finds that this fluid does not irritate the vesical mucous membrane, nor does it mix with nor disintegrate in the urine. The quantity of fluid introduced should be larger than that of the urinary residue. The injection is repeated every two or three months. Owing to the fact that the density of the fluid is higher than that of the urine, the latter rises, making possible the complete evacuation of the bladder. This renders catheterization superfluous.

Schweizerische medizinische Wochenschrift, Basel

56: 969-992 (Oct. 9) 1926

Blood Transfusion. O. Häuptli.—p. 969.
*Comparison of Stethoscopes. W. Tobler.—p. 973.
Arteriosclerosis. V. Mladejovsky.—p. 975.

Comparison of Stethoscopes.—The only stethoscopes which Tobler found satisfactory were a wooden stethoscope with a lumen of 0.8 cm. and a wooden stethoscope with a rubber funnel (at the end in contact with the patient).

Policlinico, Rome

33: 1417-1451 (Oct. 11) 1926

*Cod Liver Oil Extract in the Treatment of Rickets. L. Sabatini.—p. 1417.
Piece of Wood in Hernial Sac. A. Turco.—p. 1429.
Malaria Statistics. P. Clara.—p. 1432.

Cod Liver Oil Extract.—Sabatini studied the antirachitic action of an extract of cod liver oil prepared by Zucker's method. It had a favorable influence on the growth of rats kept on Pappenheimer's diet 85, although it did not prevent rickets. It did not exert any demonstrable action on rats kept on diet 84. Exposure to sunlight for ten minutes daily was without therapeutic value for rats kept on these diets, but cod liver oil cured them.

Riforma Medica, Naples

42: 961-984 (Oct. 11) 1926

Galactocele. G. Millul.—p. 961.
Postoperative Parotitis. D. Soli.—p. 963.
*Paradoxical Action of Atropine in Starvation. G. Cristel.—p. 965.
The Pathologist in Hospital Organization. F. d'Alessandro.—p. 974.
Primary Sarcoma of the Tongue. G. Cirillo.—p. 978.
Epinephrine in Local Anesthesia. R. Buonomo La Rossa.—p. 982.

Paradoxical Action of Atropine in Starvation.—Cristel observed inversion of the action of atropine in starving subjects. In one of two tuberculous girls with grave vomiting, injection of atropine caused abundant perspiration and sali-

vation; in the other patient the pulse slowed from 120 to 64 a minute. In two starving dogs, the gastric secretion increased after atropine injection.

Prensa Médica Argentina, Buenos Aires

13: 453-484 (Oct. 20) 1926

*Hypertension Nephritis in Children. E. A. Beretervide and F. Pozzo. —p. 453.
Granular Conjunctivitis in the Rabbit and Causation of Trachoma. C. Nicolle.—p. 458.
Experiments on the "Extinction Quotient" of Roentgen Rays in Various Substances. J. A. Saralegui and F. Vierheller.—p. 459.
*Phenolsulphonphthalein Elimination in the Normal Child. A. Casaubón and P. Winocur.—p. 463.
Anaphylotoxins and Anaphylaxis. Luis La Porta.—p. 466.
Pathogenic Leishmaniasis. F. Fernández Martínez.—p. 468. (C'td.)

Hypertension with Nephritis in Children.—Beretervide and Pozzo report two cases of hypertension nephritis in a boy and a girl, both 13 years old. This, they state, brings the total number of cases in the literature up to twenty-seven.

Phenolsulphonphthalein Elimination in Children.—Casaubón and Winocur determined the elimination of phenolsulphonphthalein in sixty-four normal children. They used Rowntree and Geraghty's intramuscular technic as simplified by Castaigne. The average elimination was 69 per cent in one hour and ten minutes. Individual results varied from 50 (one case) to 86 per cent (3 cases). When it was given by the intravenous route, the average in twenty-five cases was 79 per cent.

Revista de Cirugía, Buenos Aires

5: 385-432 (Sept.) 1926

*Late Roentgen-Ray Lesions. R. Rodríguez Villegas.—p. 385.
*Drainage in Acute Appendicitis. A. J. Pavlovsky.—p. 393.
Carcinoid of the Appendix. A. Althabe and D. Colillas.—p. 403.
Giant Cell Tumor of the Tibia. A. Gutiérrez.—p. 413.
Dorsolumbar Echinococcus Cyst. J. M. Sánchez.—p. 424.

Late Roentgen-Ray Lesions.—The woman whose case is described by Rodríguez Villegas was irradiated tix times. The diagnosis had been uterine hemorrhages caused by fibroids and hyperovarian function. The immediate effect on the hemorrhage was satisfactory. Two months and a half after the last treatment, pain, redness and a burning sensation appeared in the lower left abdominal quadrant. Finally a large discharging abscess developed. It was excised with the whole fistulous tract. Eight months after the last irradiation a swelling appeared, in the right inguinal area. It finally reached the size of a large orange. The pain became unbearable. The tumor was excised and the defect will now be covered.

When to Use Drainage in Acute Appendicitis.—Pavlovsky bases his contentions on more than 700 operations for appendicitis. Drainage had been the routine practice in Argentina until Chutro arrived from Europe, and, impressed with his experience in Ombredanne's clinic, did away with drainage entirely. Three cases are described in full to demonstrate that the lack of drainage may entail a fatal outcome. Drainage should be discarded when perforation does not exist and there is but little discharge. It need not be established even with peritonitis, if perforation is not present; nor in case of perforation if the appearance of the omentum and the pus afford evidence of a good defensive reaction on the part of the peritoneum and the general organism. Drainage, however, should be instituted in cases of gangrenous appendicitis, perforation with loose coproliths in the peritoneal cavity, or if the peritoneal cavity and Douglas' culdesac contain dark offensive pus.

Revista Médica del Uruguay, Montevideo

29: 207-252 (Oct.) 1926

*Atypical Surgery. L. Mérola.—p. 207.
Fibroma of the Cervix. L. P. Bottaro.—p. 222.
*Placenta Marginata. D. Martínez Olascoaga.—p. 230.
Thrombophlebitis of the Utero-Ovarian Vein. J. Infantozzi.—p. 235.
*Asthma and Adenoids. V. Zerbino.—p. 239.

Atypical Surgery.—Mérola asserts that the surgeon must know "the order of disorder," i. e., the general principles to which abnormal phenomena usually conform. Thus, adhesions follow a certain method in their arrangement and the surgeon must be familiar with their blood supply. Before proceeding with the operation, the affected organ must be placed in as normal a position as possible. There are two surgical technics for each organ; the anatomic or postmortem method and the clinical method. Both have their uses. Surgeons prefer one method or the other, and offer good reasons to support their practice. Thus, Crile uses the clinical method for the thyroid gland and secures good results. Yet that very procedure must be condemned when applied to the mammary gland.

Marginate Placenta.—The so-called placenta marginata seems to be very common in Uruguay. Among Martínez Olascoaga's fourteen cases were three premature labors and five stillbirths. Neither the weight nor the dimensions of the placenta were abnormal. The Wassermann test and clinical signs for syphilis were negative in all the patients. There was only one case of hydramnion.

Asthma and Adenoids.—The same factors which act in cases of adenoids seem to exert an influence on the occurrence of asthma. Among Zerbino's thirteen cases, the asthmatic condition either remained unchanged after the removal of adenoids and tonsils or appeared for the first time or became worse after the operation. The two conditions apparently are connected with some hereditary tendency.

Semana Médica, Buenos Aires

33: 1045-1112 (Oct. 21) 1926

*Primary Endothelioma of the Diaphragmatic Pleura. G. Aráoz Alfaro and P. Cossio.—p. 1045.
*Malignant Endocarditis Lenta in Children. A. Casaubón and O. H. Senet.—p. 1050.
Blastocystis Hominis. S. E. Parodi and F. L. Niño.—p. 1058.
Embryotomy on the Living Fetus. J. B. González.—p. 1060.
Interpretation of Vestibular Nystagmus. P. L. Errecart.—p. 1067.
Mendez' Closed Method in the Treatment of Purulent Infections. L. G. Gret.—p. 1071.
The Digitated Stump in Amputation of the Forearm. Terencio Gioia. —p. 1073.
Arteriovenous Aneurysm Between the Internal Carotid and the Cavernous Sinus. A. Crocco.—p. 1075.

Sign of Primary Endothelioma of the Pleura.—Aráoz Alfaro and Cossio's patient was 50 years old. The growth was a primary endothelioma of the diaphragmatic pleura, of only two months' standing. The diagnosis was suggested by the presence of the so-called phrenicoparietal syndrome, consisting of acute pain and pronounced retraction in the right thorax, hemorrhagic effusion, and phrenoptosis of the right side. The roentgen-ray examination bore out the clinical diagnosis, which was eventually corroborated by necropsy. The first signs of mediastinal deflection appeared only two months before death and six months after the clinical onset.

Endocarditis Lenta in Children.—The three cases described by Casaubón and Senet were in children aged 9, 11 and 14 years, respectively. In two, the malignant endocarditis implanted itself on a valve affected with old rheumatic disease. In one case, the rheumatic attack had occurred five years, in another, three years previously. The three cases ended fatally through embolism, after a course averaging four months.

Archiv für exp. Pathologie und Pharmak., Leipzig

117: 137-256 (Oct.) 1926

*Resistance Against Acetonitril. K. Hansen.—p. 137.
Excretory Function of the Liver. D. Adlersberg and E. Neubauer.—p. 147.
*Reinforcement of Pharmacologic Reactions. A. Fröhlich and K. Paschkis. —p. 169.
Effect of Salicyl and Caffein on Acid-Base Metabolism. W. H. Veil and W. Graubner.—p. 208.
Histamine in Ergot. A. W. Forst and H. Weese.—p. 232.
Respiration of Bone Marrow. J. von Bréza.—p. 240.
*Cyanamide Poisoning. S. Glaubach.—p. 247.

Resistance of Mice to Acetonitril.—Hansen made intravenous injections of acetonitril in physiologic sodium chloride solution in mice, which had been on an oat diet for some time previously. It was important to maintain a constant temperature during the experiments, since the resistance of the mice against acetonitril was decreased when the temperature rose. Daily doses of 0.2 mg. of tyrosine and tryptophan by the subcutaneous and peroral routes for from eight to ten

days and peroral administration of 2 mg. of tryptophan daily for eighteen days did not have any effect on the resistance to acetonitril. Two milligrams of tryptophan with 4 mg. of potassium iodide given daily for seventeen days, caused a considerable decrease in the resistance, probably because of a direct action of potassium iodide on the metabolism. He concludes that it is improbable that the formation of thyroxin depends on a direct synthesis of tryptophan and potassium iodide.

Reinforcement of Pharmacologic Reactions by Means of Purified Albumin.—Fröhlich and Paschkis studied the effect of the serum and serum albumin of the dog on the surviving uterus of the guinea-pig after addition of different poisons. The uterus was preserved in Ringer's solution, into which oxygen was introduced continuously throughout the experiments. Small amounts of purified albumin caused a marked increase in the excitability of the isolated uterus, both in the presence of substances which increase its excitability, such as pituitary extracts, quinine, barium chloride and acetylcholine, and in the presence of substances which have an inhibitory effect, such as papaverine.

Cyanamide Poisoning.—Glaubach found a considerable decrease in the content of reduced glutathione in tissues of frogs poisoned with cyanamide. After standing in the incubator at 37 C., normal muscle tissue showed an increase in its capacity to bind iodine, but muscle suspensions to which cyanamide was added in vitro showed a decrease in this property. When cystine is in contact with normal tissue, cystein is formed, the amount being in direct proportion to the time of contact. The production of cystein from cystine under similar conditions was decreased when the tissue was poisoned by cyanamide in vivo or in vitro.

Archiv für Gynäkologie, Berlin

129: 227-458 (Sept. 2) 1926

*Length and Weight of the Mature Fetus. E. Wehefritz.—p. 227.
Engorgement of the Placenta by the Mojon-Gabastou Method. J. Wieloch.—p. 261.
Large Cysts of the Uterus. E. Pribram.—p. 271.
*Spasmophilia in Pregnancy. G. M. Schpoljansky.—p. 285.
The Ovarian Arteries in Postpartum Hemorrhages. G. Haselhorst and W. Schilling.—p. 300.
Physiology of Mammary Gland Secretion. R. Dyroff.—p. 308.
Blood Sugar Regulation During Pregnancy, Parturition and the Puerperium. K. Herold.—p. 323.
Proliferation of Cervical Glands in the Vagina After Hysterectomy. J. Halban.—p. 376.
Pregnancy in the Portio Vaginalis. P. Schneider.—p. 382.
*Genesis of Ovarian Hematomas. O. O. Fellner.—p. 400.
Respiration During Pregnancy. E. Klaften and J. Palugyay.—p. 414.
Endometrioid Formations in the Parametrium. W. Schiller.—p. 425.
Mechanism of Parturition with Contracted Pelvis. P. Schumacher.—p. 448.

Length and Weight of the Mature Fetus in the Light of Variation Statistics.—Wehefritz discusses the principles of variation statistics, and from a material of 8,848 "mature" new-born infants constructs curves and tables showing the upper and lower limits of body length and weight and the relations of the one to the other. By mature he means so fully developed that the child is able to live outside the uterus without special aid. His table of normal lengths and weights corresponds in general to empiric experience but widens our horizon as to the extreme values. The "very low" weight values, especially, are of importance from the medicolegal standpoint. A child 48 cm. long may weigh from 2,117 to 3,727.5 Gm.; a child from 56 to 59 cm. long, from 3,090 to 5,192.2 Gm.

Spasmophilia in Pregnancy.—In three of the seven cases studied by Schpoljansky the spasmophilia manifested itself in tetany, in three others in hyperemesis (spasm of the pylorus), and in one in bronchial asthma (bronchial spasm). The cause of the spasmophilia is hypofunction of the parathyroids; pregnancy is merely a predisposing factor, lowering the parathyroid functional capacity still further and changing a latent into an active functional insufficiency. Whatever form the spasmophilia takes, whether it locates itself in the nerves of the muscles or in the vegetative nervous system, treatment should be causal; i. e., administration of calcium.

Genesis of Ovarian Hematomas.—Fellner discusses Sampson's view that the glandlike formations of the ovary originate in implants of uterine mucosa, loosened and carried to the new site by menstruation, and that all blood cysts of the ovary are traceable to uterine glands. Fellner studied about 3,000 ovaries from rabbits, guinea-pigs and mice, animals that do not menstruate. In only one instance did he find typically uterine glands. By injecting large quantities of lipoid he induced an artificial menstruation, i. e., a high grade hyperemia, particularly of the theca of the follicles. This led to conversion of both follicles and glands into blood cysts, the follicles more frequently than the glands. Hemorrhages were found in the lumen of glands which originated beyond doubt in the ovarian epithelium or the rete. This shows that bleeding is not in itself evidence of the uterine origin of a gland. The conditions in spontaneous hematomas of the ovary were studied in swine. Menstruation in these animals is of a similar type to that in the human species. Of seventy-four hematomas examined, sixty-one presented a wall which consisted of numerous layers of degenerated lutein cells. Of the remainder, one half had originated from follicles. A portion was of unknown genesis. Hematomas that might have taken their origin from uterine glands were not found. In the swine, glands were seen, springing both from the ovarian epithelium and from the rete, which in appearance, especially as regards their epithelium, seemed to present an intermediate stage between young and mature uterine glands. Fellner ascribes this phenomenon to the action of hormones, more powerful, probably, in animals that menstruate. In the human species, this hormonic activity is of longer duration, which would easily explain the further development of such formations in the human ovary. His researches confirm Robert Mayer's view that the glands of the ovary which resemble uterine glands originate in the ovarian epithelium under the influence of hormones; Fellner extends this theory so as to include the rete also as a structure of origin of these glands.

Beiträge zur Klinik der Tuberkulose, Berlin

64: 301-514 (Sept. 15) 1926

Pleuritis, Meningitis and Peritonitis in Tuberculosis. G. Liebermeister.—p. 301.
Pleuritis in Different Stages of Tuberculosis. R. Steinert.—p. 303.
Meningitis in Different Stages of Tuberculosis. H. Sieper.—p. 311.
Peritonitis in Different Stages of Tuberculosis. H. May.—p. 315.
Liebermeister's Secondary Stage. H. Sieper.—p. 320.
Caverns in Early Tertiary Pulmonary Tuberculosis. A. Rosarius.—p. 322.
Collapse Therapy, Thoracoplasty and Pneumothorax. A. Schoop.—p. 327.
Some Lesions of the Respiratory Organs. G. Liebermeister.—p. 336.
Predisposition of Pulmonary Apex to Tuberculosis. H. Loeschcke.—p. 344.
Extrapulmonary Tuberculosis and Reinfection of Lungs. F. Hesse.—p. 366.
Spontaneous Pneumothorax. A. Walser.—p. 373.
Mediastinum in Spontaneous and Artificial Pneumothorax. N. Oekonomopoulo.—p. 378.
Bronchiectasis of Preterminal Bronchial System. H. Loeschcke.—p. 382.
Local Sensitiveness to Tuberculin. H. Fernbach.—p. 387.
Tuberculin Reaction. P. Kimmelstiel.—p. 422.
Nonspecific Stimulation Therapy. G. Maurer.—p. 433.
*Localization of Tertiary Tuberculous Scars in the Lungs. B. Zeiss.—p. 463.
Topography of Bronchial Lymph Nodes. S. Engel.—p. 468.
*Epinephrine Blood Pressure Curve. E. Hoke and G. Kettner.—p. 482.
The Curve of the Tuberculosis Peril. W. A. Sukiennikow.—p. 495.
Blood Groups and Tuberculosis. M. M. Alperin.—p. 500.

Localization of Scars in Tertiary Tuberculosis of the Lungs.—Zeiss studied 187 lungs of adults with tertiary tuberculous scars and found that 99.5 per cent contained foci in the posterior part of the upper lobe, with 96.8 per cent of apical and 3.2 per cent of subapical scars. In cases in which healed tuberculous processes were found in other bronchial regions, the apical scars represented the older foci.

Blood Pressure Curve and Tonus of Vegetative Nervous System.—After intracutaneous injection of epinephrine, Hoke and Kettner obtained blood pressure curves that did not check with the established symptoms of vagotonic and sympatheticotonic conditions in the patients. It may be that the epinephrine reaction is reversible and that secondary effects of the vagus and depressor changed the shape of the curve. They consider the reaction unsuitable for diagnostic purposes.

Deutsche medizinische Wochenschrift, Berlin

52: 1713-1754 (Oct. 8) 1926

Curative Pedagogics. E. Stern.—p. 1713.
Serodiagnosis of Gonorrhea. A. Cohn.—p. 1717.
*Treatment of Gonorrhea. H. Saenger.—p. 1718.
*Insulin by Mouth. W. B. Meyer and A. Oppenheimer.—p. 1720.
*Diabetes, Insulin and Pregnancy. E. Kaufmann.—p. 1722.
Cations and Inflammation. W. Grossmann and E. Wollheim.—p. 1724.
Tuberculous Skin Tumors. W. Richter.—p. 1725. C'cn.
*Extermination of Indemnity Neuroses. Levy-Suhl.—p. 1727.
*Yellow Fever. W. H. Hoffmann.—p. 1729.
*Insulin and Experimental Alkalosis. E. Schiff and K. Choremis.—p. 1732.
Blood Analysis in Pernicious Anemia. J. Neuburger.—p. 1733.
Bacteriologic Proof of Sugars in Urine. M. Benjasch.—p. 1733.
Postoperative Retention of Urine. H. Küstner.—p. 1734.
Diathermy of Spleen in Asthma. R. Gassul.—p. 1735.
Orthopedics. H. Debrunner.—p. 1736.

Critical View of Treatment of Gonorrhea.—Saenger is opposed to any local treatment in the acute stage of gonorrhea in either sex.

Insulin by Mouth.—At Umber's clinic, Meyer and Oppenheimer failed to observe any effect from insulin administered by mouth in the form of Fornet's pills or in a similar preparation.

Diabetes, Insulin and Pregnancy.—Kaufmann's patient developed a grave diabetes after pregnancy and twice recovered from coma—the second time during a new pregnancy. The latter was artificially interrupted about eight weeks before term. The baby was completely developed. The mother died a few days later from the sequelae of a hypoglycemic coma due to administration of 150 units of insulin in three doses distributed over eight hours.

Eradication of Indemnity Neuroses.—Levy-Suhl regards as superfluous the various names—such as traumatic neurosis or hysteria or wish neurosis—used instead of the plain term, "indemnity neurosis." He pleads for legislative measures to prevent any possible gain from such a condition, but wishes that physicians might learn to love even the pathologic subjects who develop it.

Yellow Fever.—Hoffmann deals with the difficulties in the diagnosis of yellow fever in sporadic cases. The Cuban commission rarely arrives at a definite diagnosis before the fourth or fifth day of observation. Jaundice is evident in less than 50 per cent of the cases, but Faget's sign is frequently positive: a red line between two yellow lines on drawing a nail along the skin. Albuminuria, varying in intensity, is a very characteristic feature. Hoffmann's report is based partly on his own observations, partly on detailed histories of 107 cases, which he obtained from Guiteras before this expert died. The latter discovered the epidemiologically important fact that yellow fever is usually very mild in children, who thus form the continuous source of infection in regions with endemic yellow fever. Immunity acquired in childhood is the reason for the erroneous theory of the natural immunity of negroes.

Insulin and Experimental Alkalosis.—Schiff and Choremis found that insulin was without action on hyperglycemia—or that its action was weak—when injected in fasting infants made alkalotic by daily administration of 8 Gm. of sodium bicarbonate. The infants were also kept on a low ration of water. The authors assume the existence of a similar alkalosis in acute infections and believe that this is the reason insulin has less effect in febrile subjects than in those with normal temperature.

Medizinische Klinik, Berlin

22: 1513-1550 (Oct. 1) 1926

Ectopic Pregnancy. Kupferberg.—p. 1513.
Palliative Decompression. G. Herrmann and F. Rudofsky.—p. 1515.
*"Endolumbar Treatment of Syphilis." M. Nonne and H. Pette.—p. 1520.
Bilateral Renal Calculi. R. Paschkis.—p. 1522.
Hypertrophy and Ectomy of Prostate. R. Oppenheimer.—p. 1526.
Still's Disease in the Adult. W. Goldstein.—p. 1527.
Roentgen-Ray Exposimeter. R. Borger.—p. 1529.
Serodiagnosis of Syphilis. G. Blumenthal and B. Schwarzmann.—p. 1530.
*Carbon-Nitrogen Quotient. H. Wada.—p. 1532.
Pulmonary Tuberculosis Due to Occupation. Von Schnizer.—p. 1534.

"Endolumbar Treatment of Syphilis."—As a result of forty years of experience in the treatment of neurosyphilis, Nonne and Pette declare that the curable patients recover after treatment with mercury and iodine. Arsphenamine may be useful for hastening the resorption of syphilitic products. Endolumbar treatment does not possess greater advantages, is difficult for the physician as well as for the patient, and involves the danger of serious injury. Malaria treatment is good. Restoration of the cerebrospinal fluid to a normal condition does not absolutely preclude neurosyphilis. The patient's general health as well as his constitution are important factors in prognosis.

Carbon-Nitrogen Quotient.—Wada determined the carbon-nitrogen ratio in the urine of subjects living on Bickel's test diet consisting of: boiled beef, 2 Gm.; white bread, 4 Gm.; boiled potatoes, 6 Gm.; sugar, 0.4 Gm.; Swiss cheese, 0.4 Gm.; milk, 5 cc.; butter, 1 Gm.; chocolate, 1 Gm.; boiled cauliflower, 6 Gm. per kilogram of body weight; weak tea, water, salt and condiments as desired. The ratio on this diet was between 0.64 and 0.70 (average 0.69).

Monatsschrift für Kinderheilkunde, Leipzig

33: 481-576 (Oct.) 1926

Treatment of Rachitis. R. Goldblatt et al.—p. 481.
Diaphragmatic Relaxation. P. Frick.—p. 493.
*Blood Platelets in Diagnosis of Tuberculosis Activity. H. Schlack.—p. 504.
Ability of Infant's Pancreas to Dissolve Nuclei. J. von Lukács.—p. 509.

Blood Platelet Curve in Diagnosis of Activity of Tuberculosis.—Schlack studied the blood platelet curve in 103 tuberculous patients after injection of tuberculin. The count was normal when the tuberculin reaction was negative, but was decreased with positive reactions. In twenty-six cases of scrofulosis the number of blood platelets was markedly increased. A decrease in the platelets was never noted in tuberculous patients who were completely cured.

Münchener medizinische Wochenschrift, Munich

73: 1687-1734 (Oct. 8) 1926

Treatment of Diabetes. W. H. Jansen and P. Müller.—p. 1687.
*Ephedrine. F. O. Hess.—p. 1691.
*Two Types of Azotemia. E. Becher.—p. 1694.
Changes in Streptococci. R. Hubert.—p. 1695.
Intestinal Infections of a Typhoid Epidemic. Herhold.—p. 1696.
Athletics for Policemen. Abesser.—p. 1697.
Acetylene Anesthesia. F. Cardauns.—p. 1699.
Pericardium and Circulation. G. Hauffe.—p. 1703. C'td.
Chronic Peritonitis. M. Albrecht.—p. 1706.
*Spasm of the Stomach as Source of Error in Roentgenologic Examinations. R. Dvorak.—p. 1708.
*Tetanus After Operation on the Foot. A. Königswieser.—p. 1709.
Calcium Chloride in Adnexa Inflammations. O. Silzer.—p. 1710.
Obstetric Girdle. H. Caspary.—p. 1711.
Dangers of the Electric Light Bath. E. Plate.—p. 1712.

Ephedrine.—Hess studied the action of ephedrine in man. He found it useful in asthma and in prevention of low blood pressure in malaria and pneumonia. He appreciates especially the fact that, in this age of injections, it makes the patient independent of the syringe.

Two Types of Azotemia.—Becher discusses the difference between the type of insufficiency of the kidney in the acute stage of nephritis and that in chronic cases. The former rarely causes a true uremia, although the eclamptic form of pseudo-uremia which is not due to renal insufficiency may occur. In acute retention of urea and uric acid, the urine is brown and its specific gravity high, while the pale urine of the chronic form contains only the chromogens and has a low specific gravity. Creatinine, indican and the aromatic products of intestinal putrefaction as a rule increase in the blood in the chronic form of azotemia only. The epithelial cells of the renal tubules are more or less degenerated in the acute form; they are flat in the chronic type. Impairment of the blood circulation in the kidney seems to account for the former type, a grave disturbance of the function of the tubules for the latter.

Errors in Roentgenologic Diagnosis Due to Spasm of the Stomach.—Dvorak reports two blunders in roentgenologic diagnosis. An apparent filling defect in the prepyloric region was interpreted as a sign of cancer. Laparotomy was done on one of the patients, while a second roentgenologic exam-

ination of the other patient, after treatment with atropine and papaverine, revealed normal conditions. The filling defects had been due to spasm.

Tetanus After Operations on the Foot.—Königswieser reports three cases of tetanus after surgical interventions involving the sole of the foot in subjects who had been walking barefooted. His present practice is to inject a preventive dose of antitoxin in all such patients, as a routine measure.

Wiener klinische Wochenschrift, Vienna

39: 1181-1208 (Oct. 7) 1926

Visceral Innervation in Parkinsonism. L. Hess and J. Goldstein. —p. 1181. C'td.
*Vaccinia Protects Against Rabies. B. Busson.—p. 1183.
Metreurysis in Placenta Praevia. E. Klaften.—p. 1185.
The Ulcer Patient. G. Holler.—p. 1187.
Injury to Phrenic and Recurrent Nerve by Tuberculosis. A. Arnstein. —p. 1191.
Treatment of Hemoptysis. E. Weidinger.—p. 1193.
First Aid in Railroad Accidents. E. Ruff.—p. 1194. C'td.
Pains in the Feet. H. Matheis.—p. 1197.
Motility of the Stomach. M. Haudek. Supplement.—pp. 1-16.

Vaccinia and Protection Against Rabies.—Busson investigated the relations between rabies and vaccinia. He discovered that guinea-pigs that had been recently inoculated with cowpox virus were, as a rule, immune to infection with the street virus of rabies.

39: 1209-1240 (Oct. 14) 1926

*Pulse Difference of Cerebral Origin. T. Hermann.—p. 1209.
*Gastric Disturbances in Pleurisy. S. Plaschkes and K. Weiss.—p. 1210.
*Fractures of Ribs from Coughing. E. Wahl.—p. 1213.
*Inunction with Fat. R. Latzel and K. Stejskal.—p. 1219.
Experiences in Abyssinia. E. Fuchs.—p. 1220.
Visceral Innervation in Parkinsonism. L. Hess and J. Goldstein. —p. 1222.
"Acid Alkali Balance and Ulcer." R. Bálint.—p. 1225.
Urine Tests. R. Willheim.—p. 1228.
Orthopedic Shoe Inlays. A. Saxl.—p. 1230.
Injuries Suffered in Athletics. F. Mandl. Supplement.—pp. 1-15.

Pulse Difference of Cerebral Origin.—Hermann reports several cases of brain lesions (hemorrhage, thrombosis, embolism) with a marked difference in pulse of the radial arteries. This phenomenon was discovered by Pál.

Gastric Disturbances in Pleurisy.—Plaschkes and Weiss found adhesive diaphragmatic (usually tuberculous) pleurisy as a comparatively frequent cause of pains and disturbances in the stomach. The syndrome was described by Ortner, Mace and Rennen. Careful examination of stomach contents and of feces differentiates the condition from an ulcer of the stomach. On roentgen-ray examination of some of the patients, the authors found a peculiar change in the shape of the fundus, from which they conclude that Ortner's opinion as to the possibility of perigastritis was correct.

Fractures of Ribs from Coughing.—Wahl observed three cases of fracture of ribs which were due to coughing. He discusses sixty-three other cases which were reported as apparently spontaneous rib fractures. Coughing was the exciting as well as main cause in forty-one of these, sneezing in two.

Inunction with Fat.—Latzel and Stejskal observed a decreased cleavage of nitrogen—or at least decrease in the amount of nitrogen in the urine and perhaps also in the blood—after rubbing large amounts of fat (up to 250 Gm. of olive oil) into the skin. In nephritis they combined this treatment with administration of 100 Gm. of dextrose in 500 Gm. of water by mouth. Proteins and drugs added to the oil were also absorbed by the skin. The weight of the patient fell because of increased loss of water by insensible perspiration.

Zeitschrift für klinische Medizin, Berlin

104: 1-298 (Oct. 12) 1926

Uricolysis. L. Lichtwitz and L. Conitzer.—p. 1.
Urinary Ferments. H. J. Evensen.—p. 6.
Aromatic Oxacids in Blood. E. Becher et al.—p. 29.
Urinary and Blood Proteins in Nephritis. V. Kollert and W. Starlinger. —p. 44.
*Blood Changes from Insulin. F. Rothschild and M. Jacobsohn.—p. 70.
Carbon Dioxide Baths. S. Wermel.—p. 80.
*Vegetative Disturbances in Encephalitis. E. Wollheim.—p. 94.
Registration of the Heart Beat. H. Regelsberger.—p. 107.
Aleukemia Myelosis, Osteosclerosis and Gout. K. Hagedorn.—p. 124.
Galactose Liver Function Test. G. Noah.—p. 150.
*Functional Albuminuria. H. Medem.—p. 174.
Blood Phenol. E. Becher et al.—p. 182.
Eosinophils Counted in Thick Droplets. H. Hornung.—p. 207.
*Weight, Serum Proteins and Tuberculin Treatment. A. Salomon. —p. 223.
Determination of Fragility of Erythrocytes. E. Cohnreich.—p. 234.
Studies in Histohemorenal Distribution. E. Bernheim.—p. 240.
Idem. E. Jochmann.—p. 255.
Idem: Creatinine. O. Heesch and R. Tscherning.—p. 277.

Blood Changes from Insulin.—Rothschild and Jacobsohn confirm the high level of cholesterol, of organic and inorganic phosphorus, and of potassium in the blood in diabetes. Calcium and residual nitrogen are at the upper limits of the normal. After injection of insulin, the cholesterol (and the lipemia) decrease, and the inorganic phosphorus is apparently being utilized for synthesis of hexose-diphosphates (increased organic phosphorus content). Potassium in the blood decreases, calcium increases.

Vegetative Disturbances in Encephalitis.—Wollheim found high fasting blood sugar values in eight subjects suffering from the hyperkinetic type of epidemic encephalitis. Administration of dextrose was followed by only a slight increase in the blood sugar, rapid return to the previous level, and marked subsequent hypoglycemia. In the hypokinetic type of chronic encephalitis (twenty-three experiments), the fasting blood sugar was normal in some, slightly above normal in others. The alimentary glycemia curve as a rule rose steeply and returned late to the previous level. Similar different types of vegetative regulation—hyperregulation in hyperkinetic, delayed regulation in hypokinetic encephalitis—were observed in the number of leukocytes after administration of milk or injection of epinephrine.

Functional Albuminuria.—Medem administered three heaping teaspoonfuls of sodium bicarbonate daily to twenty-eight subjects with albuminuria. With one exception it was possible to differentiate functional albuminuria from organic lesions by this method: In the former condition the albumin disappeared from the urine within two days.

Weight, Serum Proteins and Tuberculin Treatment.—Salomon investigated the changes in the blood protein concentration and in body weight in tuberculosis. He was unable to confirm Meyer-Bisch's observations on a characteristic curve due to periodic retention of water. The increased weight in the evenings is sufficiently explained by the intake of food. Tuberculin injections did not cause any characteristic changes in the weight or in the hydremia of his patients.

Zeitschrift f. d. ges. Neurologie and Psychiatrie, Berlin

105: 1-328 (Oct. 25) 1926

Contrast Visualization in Surgery of Spinal Cord. E. Heymann.—p. 1.
Spongy Transformation of Cerebral Cortex. E. Sträussler and G. Koskinas.—p. 55.
Paralysis of Oculomotor Nerve. L. J. Brussilowsky.—p. 72.
Pathologic Anatomy of Lathyrism. I. N. Filimonoff.—p. 76.
*Psychology of Peasants. Schweighofer.—p. 93.
Disturbances of Motion in Progressive Paralysis. L. Horn.—p. 120.
Irradiation of Pain into the Right Arm from the Pelvic Organs. M. Lapinsky.—p. 140.
*Functional Tests of Internal Organs in Sequelae of Epidemic Encephalitis. H. Schoenemann.—p. 175.
Relation Between Encephalitis in Man and in Animals. H. Kuttner. —p. 182.
White Softening of the Brain. K. Neubürger.—p. 193.
Changes in the Brain in Carbonmonoxide Poisoning. W. Weiman. —p. 213.
Cerebrospinal Fluid in Malaria Treatment of Paralytics. H. Pfeiffer et al.—p. 224.
Method for Determining Disturbances of Movement. H. Menschel and R. du M. de Rochemont.—p. 237.
Macropsia and Micropsia in Exophthalmic Goiter. W. Neuhaus.—p. 257.
Pathologic Anatomy of Paralysis Treated by Malaria. M. Gurewitsch. —p. 314.

Psychology of Peasants.—Schweighofer studied the physical and mental status, attributes and psychoses of the mountain inhabitants in the province of Salzburg. He states that children are usually a result of animal instinct; the condition of the wife is seldom taken into consideration and provision is not made for the children, who show a high mortality in spite of a low percentage of stillbirths. The physical and

mental development is slow. There is retardation in the development of conception and in reactions, and monotony and simplicity of psychic functions are conspicuous. Lack of sexual refinement, limited intellectuality and animistic superstitions are typical. The mentality of peasants is very undifferenciated. Remnants of atavistic peculiarities are preserved to a greater extent than among city dwellers. The pathologic psychology was also characterized by simplicity and undifferentiation.

Functional Tests of Internal Organs in Sequels of Epidemic Encephalitis. — Schoenemann's examination, of seventeen patients did not reveal any disturbances in the function of the liver or the kidneys. Nycturia, which was repeatedly observed, was due to disturbances of the central nervous system. Excretion of saliva, sweating and cold hands and feet, combined with a distinct cyanosis, were noted, and respiratory arrhythmia sometimes occurred. The symptoms indicated an increase in the tonus of the parasympathetic nervous system.

Zentralblätt für Gynäkologie, Leipzig

50: 2481-2544 (Sept. 25) 1926

Technic of Wertheim's Operation for Carcinoma. R. Asch.—p. 2481.
Prognosis of Carcinoma of the Cervix from Biopsy. B. Liegner. —p. 2485.
*Borderline Forms of "Interrenalism." E. Mathias.—p. 2489.
*The Procteurynter in Obstetrics. P. Klein.—p. 2493.
Postoperative Acetonuria. B. Waller.—p. 2496.
Induction of Labor by Sheep's Bladder Filled with Glycerin. F. A. Scheffzek.—p. 2500.
Cesarean Section in the Absence of Uterine Contractions. B. Langen. —p. 2503.
*Difficulties in Lactation. K. Stolte.—p. 2507.
Gynecologic Phenomena in Obesity. E. Tuszkai.—p. 2511.

"Interrenalism."—Mathias suggests this term for the virilism induced by a certain kind of hypernephroma or increase in the number of cells of the suprarenal cortex. This effect of hyperplasia of the tissue of the suprarenal cortex may be seen not only in strictly pathologic conditions but in the growth of hairs on the chin in older women and in the slight virilism of pregnancy, evident in the physiognomy, in the increase of hair on the entire body, pigment changes, growth of beard, etc. He reproduces the photograph of a woman, 57 years old, with features of masculine type and a strong growth of hairs on the chin. On her death, from carcinoma of the uterus, the cortex of both suprarenals was found to contain a large number of small, globular adenoma nodules. The ovaries were atrophic.

The Procteurynter in Obstetrics.—To incite uterine contractions in the first stage of labor, Klein inserts into the rectum a rubber bag capable of holding from 130 to 150 cc. and slowly fills it with hot water (45 C.). Barnes' bag is of the right shape. It should reach as high as the sacro-uterine ligaments, where Frankenhauser's ganglions lie. The special advantages of the method are that these ganglions, centers for uterine contractions, are actually nearer to the rectum than to the vagina, that the application is extragenital, and that by smoothing out the posterior wall of the vagina the bag facilitates the escape of secretions. A further advantage, especially in the case of primiparas, is rapid obliteration of the portio from pressure by the filled bag. The procedure is indicated especially in cases of premature rupture of the amnion, with weak pains, of protracted labor with gradual rise of temperature, of purulent discharge and of inflammatory changes in the vagina or external genital organs. The bag is left in the rectum for three or four hours, longer if necessary; it does not give pain and is well tolerated. It has been used in 800 cases in the obstetric clinic of the German University at Prague, with good results in 60 per cent, and fair results in 20 per cent.

Difficulties in Lactation. — Stolte mentions a pronounced decrease in the secretion of milk in the third and seventh weeks after delivery. This decrease occurs with great regularity. In the first instance it is probably due to resumption of physical activity, and is overcome by rest. Lessening of hormonal stimulation to secretion, consequent on complete involution of the uterus, may be responsible for the second critical period. It can be avoided by making increased demands on the breast at this time. Slight diarrhea or loss of appetite in the child at the time of the mother's menstruation is not of importance and should not be allowed to interfere with breast feeding. Any interruption is to be deplored. For this reason a common cold, interfering with nose breathing, is a serious matter in the infant. In the case of abnormally sensitive nipples, the situation may be saved by applying the child to the breast in such a manner that it does not grasp the nipple alone, but includes a portion of the surrounding breast between its lips. A fissured nipple may be so painful as to make suckling an impossibility; but unless the breast is thoroughly emptied as it fills, suckling on that side will have to be given up for the remainder of the lactation period. Even in true mastitis, with chill, high fever and other signs of grave infection, the infant should not be taken from the breast. Removal of the congested secretion relieves pain and favors cure. Stolte has found the breast pump less valuable than the skilful hand in emptying the breast.

Zentralblatt für innere Medizin, Leipzig

47: 969-1000 (Oct. 9) 1926

*Exchange of Substances Between Tissue and Blood. H. Marx.—p. 970.

47: 1001-1016 (Oct. 16) 1926

Orthostatic Albuminuria and Syphilis. J. Zübert.—p. 1001.
Rare Reflexes. J. Susmann Galant.—p. 1005.

Exchange of Substances Between Tissue and Blood.—Marx determined the concentration of hemoglobin, proteins and chlorides in the blood under various conditions. After ingestion of water, a fluid containing less chlorides and proteins than the plasma streamed from the tissues into the blood, unless the subject had been kept on a diet rich in salt. In this case the chlorides in the blood increased after drinking water. In fasting subjects hot baths were followed by dilution of the blood. If the subject drank 150 cc. of water before taking the bath, the blood became more concentrated. In chronic nephritis, in the stage of renal insufficiency, the composition of the blood remained practically constant under all these conditions.

Russkaya Klinika, Moscow

6: 297-447 (Sept.) 1926

Shifting of the Neutrophil Blood Picture to the Right. A. Egoroff. —p. 297.
Rôle of the Liver in Disturbances of Fat Metabolism. V. N. Smotroff. —p. 308.
"Superficial Form" of Primary Actinomycosis of the Lung. M. A. Skvortsoff.—p. 320.
Pathology and Pathogenesis of Acute Myelitis. M. S. Margulis. —p. 331.
*Secretory and Motor Activity of the Stomach in Cerebral Diseases. Buzik and Mitnitskiy.—p. 353.
Early Complications of Appendectomy. M. V. Mikhailova.—p. 367.
*Forms of Appendicitis and Results of Appendectomy. S. Briusova. —p. 379.

Secretory Function and Motility of the Stomach in Brain Diseases.—Buzik and Mitnitskiy determined the gastric acidity of seventeen patients, aged from 14 to 60, with epidemic encephalitis of from six months' to three years' standing. In 77 per cent, the hydrochloric acid of the gastric juice was decreased or even absent. It was normal in the remainder. The motility of the stomach was either increased or decreased. In four of five patients with general paralysis, the gastric acidity was abnormally low. Four of five patients with tumor of the brain presented a high gastric acidity associated with impaired motility. Evidently the centers of gastric secretion and of gastric motility in the cervical cortex are independent of each other. Involvement of the secretory center in the degenerative process of epidemic encephalitis causes reduction of gastric acidity. Irritation of the secretory center from high intracranial pressure explains the increase of gastric acidity in brain tumor. Irritation of the center of gastric motility causes reduction or arrest of the rhythmic contractions of the pylorus.

Correlation of Results from Appendectomy with the Form of Appendicitis.—Briusova examined 237 persons a year or more after operation for chronic appendicitis. The recovery was complete in 50 per cent. Others still complained of pain and constipation. In patients who had suffered from severe

attacks of appendicitis, the operation was followed by recovery in 54 per cent, by improvement in 40 per cent. The condition was unchanged in 4 per cent. On the other hand, in those with a mild form of appendicitis, complete recovery was rarer; the operation was without effect in 12 per cent. About 36 per cent of patients with nontypical attacks of appendicitis recovered completely; 44 per cent were improved; 20 per cent did not receive benefit. Anatomic or topographic peculiarities of the appendix are among the factors that may interfere with the results of appendectomy.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

70: 1963-2082 (Oct. 30) 1926

The Cancer Problem. R. de Josselin de Jong.—p. 1964.
*Incubation Time of Erythema Infectiosum. Y. Hanneman.—p. 1984.
Insulin in Fattening. J. L. A. Peutz.—p. 1986.
*Jaundice After Use of Cinchophen. D. Klinkert.—p. 1989.

Incubation Time of Infectious Erythema.—In twenty-three cases Hanneman confirmed the fact that the incubation time of erythema infectiosum in children is, as a rule, from seven to fourteen days, but he reports seven cases in which the incubation was of four, five, six, seventeen or eighteen days. The age of the patients varied between 11 months and 12 years.

Jaundice from Use of Cinchophen.—Klinkert reports the case of a man, aged 60, who developed severe jaundice as a consequence of taking 160 tablets of cinchophen during a period of three months, as an anodyne for arthritic pains. The liver was enlarged, but the gallbladder was of normal size and not tender to pressure. The Wassermann reaction was negative. Meteorism, ascites, anorexia and a marked urobilinuria were the most prominent symptoms. The patient recovered three months after the onset of the jaundice.

Acta Medica Scandinavica, Stockholm

64: 497-595 (Oct. 13) 1926

*Serum Sickness. H. Hecksher.—p. 497.
Treatment of Serum Sickness. H. Heckscher.—p. 505.
Prognosis of Hypertonia. B. Beni.—p. 512.
Biologic Test for Fern Extracts. G. Bergroth.—p. 520.
*Idiopathic Amyloidosis. H. Silwer and A. F. Lindblom.—p. 529.
Epinephrine in Hypertonia and Bronchial Asthma. A. Brems.—p. 546.
*Gastric Function and Fractional Aspiration. K. Faber et al.—p. 570.

Serum Sickness in Treatment of Diphtheria with Large Doses of Serum.—The tendency to serum sickness in Heckscher's 148 cases increased with the age of the patient. It was greater between the ages of 6 and 15 than in younger children. Intravenous injections seemed to produce fewer cases of serum sickness than did intramuscular injections. The volume of serum injected was also an important factor.

Idiopathic Amyloidosis.—Silver and Lindblom report the case of a man, aged 34, who developed dyspnea, palpitation on exertion, edema of the feet and ankles, cyanosis of the lips and cheeks and increase in size of the abdomen. These symptoms disappeared a few days after admission to hospital, but the heart and liver remained enlarged. The reflexes and the urine were normal. The patient developed a psychotic condition and died ten months after the appearance of the first symptoms. The necropsy revealed amyloidosis of the heart and kidneys without apparent cause.

Gastric Function and Fractional Aspiration.—Faber, Holst and Norgaard made fractional examinations of the gastric contents on 159 occasions, eighty-three times after an oatmeal porridge meal and seventy-six times after a rusk meal. The subjects were patients with digestive disturbances. The amount of the fasting secretion was 20 cc. or less in seventy-nine cases and 100 cc. or more in four cases. A low acidity in a secretion of 20 cc. or less did not have clinical significance. The highest acidity occurred from one to one and one-half hours after ingestion of the test meal. True achylia must be distinguished from pseudo-achylia. A phenolphthalein value above 25 and high pepsin values after an Ewald test meal, when the congo red reaction is negative, indicate pseudo-achylia. The starch usually disappeared from the stomach from two to two and one-quarter hours after an oatmeal porridge meal and from two and one-half to two and three-quarter hours after a rusk meal. In daily clinical work, Ewald's test meal will suffice, for the present, for investigating the hydrochloric acid secretion of the stomach. Only in special cases will fractional examination be found necessary.

Acta Path. et Microbiol. Scandinavica, Copenhagen

3: 385-488, 1926

Bacteriology of Purulent Meningitis. C. Nyberg.—p. 385.
Origin of Blood Platelets. S. Petri.—p. 432.
*Therapeutic Experiments with Metal Salts. L. E. Walbum.—p. 449.

Therapeutic Experiments with Metal Salts.—Walbum demonstrated that intravenous injections of manganese in optimal concentrations destroyed bacterial toxins in animals inoculated with staphylococcus endotoxin, dysentery, diphtheria or tetanus toxins. It was possible to prevent the tuberculin shock in tuberculous guinea-pigs by preliminary injections of small quantities of manganese chloride. Injection of 0.001 mol of caesium chloride saved mice from otherwise deadly ratin infection. This effect depended to a great extent on a brief period of starvation prior to infection. About 87 per cent of starving mice became immunized by caesium treatment, whereas only about 9 per cent of the nonstarved were immunized. It was not possible to immunize mice with a killed culture of ratin bacilli or with ratin serum, produced by immunization of rabbits, or with manganese alone, but he was successful in all his cases when combining manganese with vaccine. When administered simultaneously with vaccine, potassium permanganate or manganese sulphocyanate produced the same effect as did manganese chloride, but a complex manganese salt with a pyrocatechin derivative did not give results. These experiments justify the use of a combination of vaccine and metal salt therapy in clinical investigations.

Hospitalstidende, Copenhagen

69: 985-1008 (Oct. 14) 1926

*Neoglucose. H. C. Hagedorn.—p. 985.
*Hydrogen Ion Concentration and Glycolysis. A. Roche and J. Roche.—p. 1002.

Neoglucose.—Hagedorn was not able to confirm Lundsgaard and Holbøll's observations that neoglucose is formed in vitro, by dialysis of a mixture of dextrose, muscle suspension and insulin. Ultrafiltrates of normal human blood or of cerebrospinal fluid from human subjects with a normal carbohydrate metabolism did not contain neoglucose.

Hydrogen Ion Concentration and Glycolysis of Human Blood.—In determination of the hydrogen ion concentration of the blood during glycolysis, Roche and Roche used sodium citrate as anticoagulant, instead of ammonium citrate, used by Holbøll. Ammonium citrate caused a displacement of the serum reaction toward the acid side. The optimal effect of the glycolytic enzyme occurred at a p_H between 8.2 and 8.3, and the total range of action was from 5.4 to 9.2. The glycolytic enzyme was very sensitive to changes in the hydrogen ion concentration. A change of 0.5 from the optimum sometimes caused a decrease of 30 per cent in the glycolysis.

Ugeskrift for Læger, Copenhagen

88: 993-1020 (Nov. 4) 1926

Diagnosis of Cancer of Gastro-Intestinal Tract. T. E. H. Thaysen.—p. 993.
*Specific Rotation of Dextrose. S. A. Holbøll.—p. 999.
*Contagiousness of Icterus Catarrhalis. E. Sylvest.—p. 1003.
Origin of Diabetes. S. Hansen.—p. 1006.

Effect of Insulin and Muscle Suspension on the Specific Rotation of Dextrose.—Holbøll was unable to confirm the formation of neoglucose when he repeated his previous experiments, using the same technic but another insulin preparation.

Contagiousness of Icterus Catarrhalis.—In 1917 Sylvest observed twenty-two cases of icterus catarrhalis of epidemic nature. He now reports sixteen additional cases, refers to observations of others, and affirms that icterus catarrhalis is contagious. The incubation time seemed to be about two weeks, and the disease could be transmitted by a healthy carrier. It was not possible to isolate a pathogenic virus from the feces. He emphasizes the opinion that school children ought to be isolated during the course of the disease.